

The Mining And Metallurgical Journal

VOL. XVIII. NO. 8

LOS ANGELES, CAL.,

January 15, 1898,

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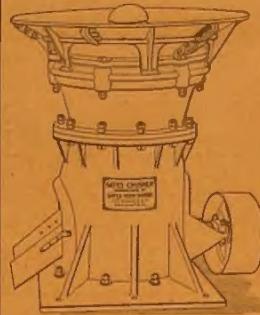
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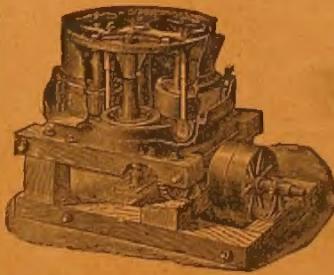
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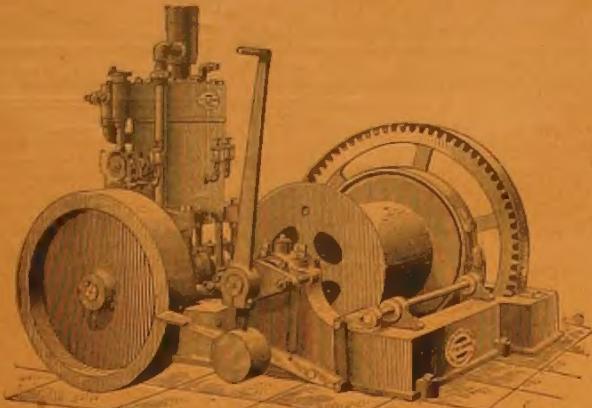
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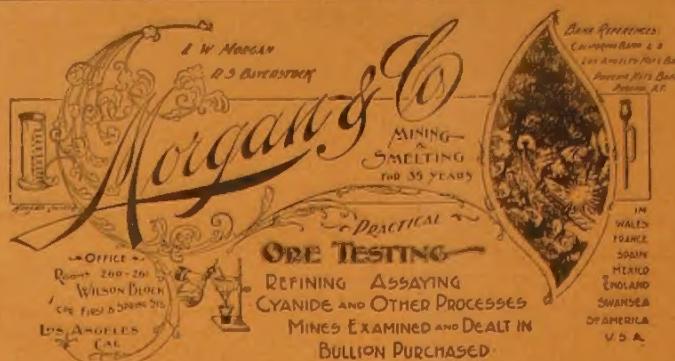
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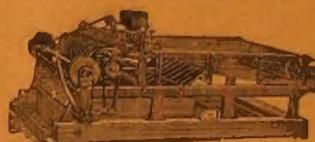
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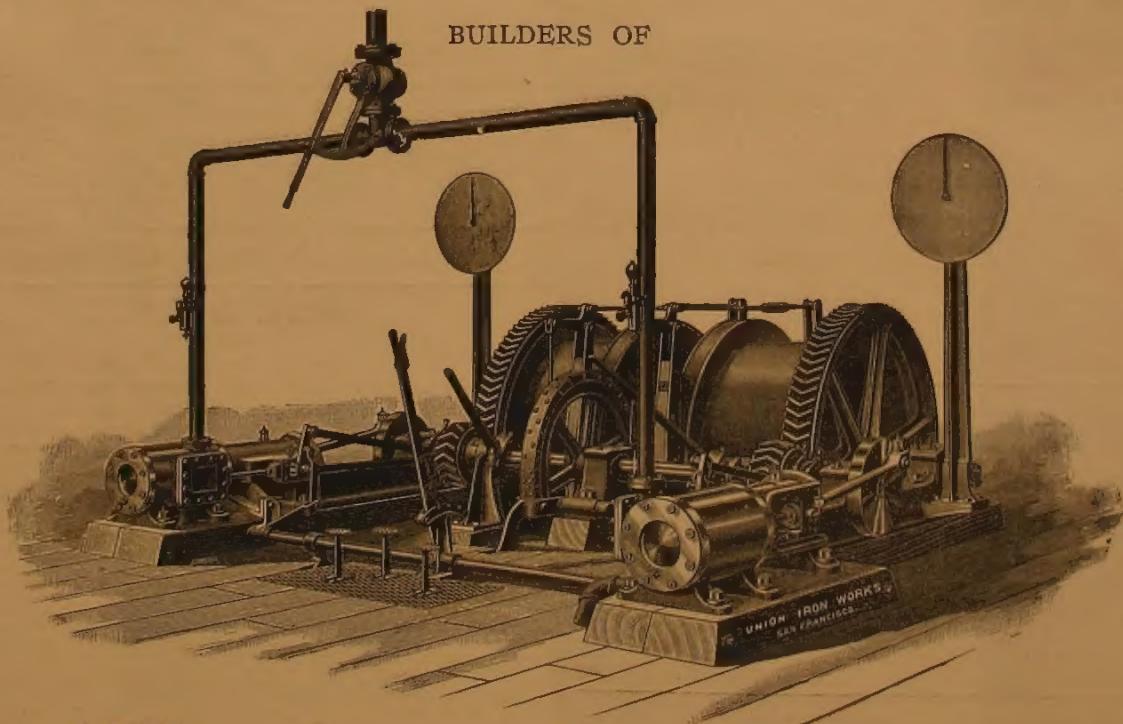
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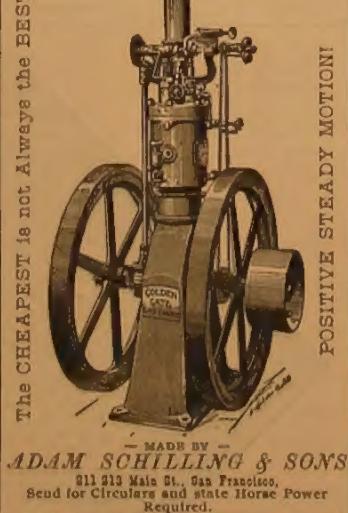
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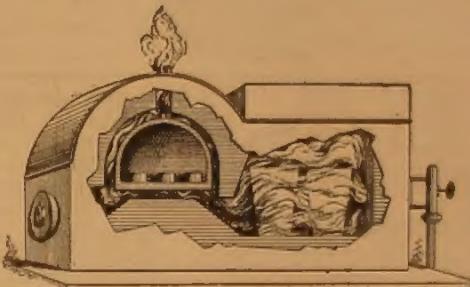
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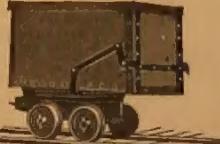
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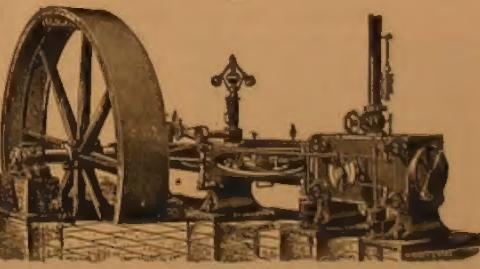
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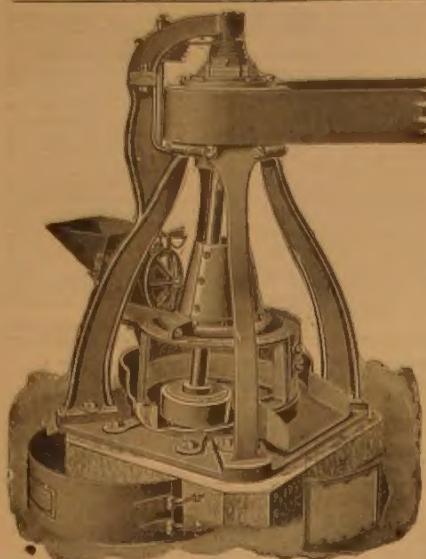
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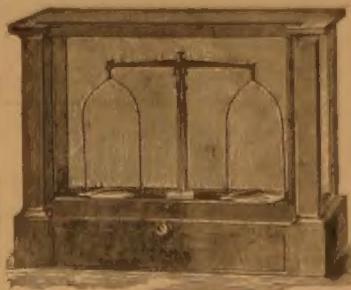
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THE GOLDEN JUBILEE OF CALIFORNIA, AT LOS ANGELES, 24th JAN., 1898.

As noted in a previous issue, the opportune moment to celebrate the fiftieth anniversary of the discovery of gold by James Marshall, at Caloma, on the south fork of the American River in El Dorado County, which event precipitated the greatest rush for gold which the world has ever seen, but was not the first discovery nor yet the first successful operation of placer mining within the state.

In the records of the Catholic Missions, both in California and in Arizona, mention is made of the discovery and early operation of placer mining, on a small scale, by the Indians under Mexican supervision. But, knowing the effects of mining excitements in South America, in taking the Indian population out of the servitude of the Church, such discoveries were kept from public notice.

There is some doubt among historians as to the exact year for the first authentic discovery of gold by a white man, or that in which Francisco Lopez, a native of California, while resting during a search for stray horses in San Francisquito Canyon, about eight miles northwesterly of Newhall, dug up with his sheath-knife wild onions, and in the earth discovered a piece of gold, and afterwards returned and found more. During the period from 1810 to 1840, Jose Bermudes and Francisco Lopez superintended the Mission Indians in working the San Feliciana placer diggings, which are situated at an elevation of two thousand one hundred feet, between Castaca diggings on Piru Creek, twelve miles west of Newhall, on the Southern Pacific Railway. In 1842, finding that these deposits, though worked in a crude manner, by winnowing the sand and earth in a canvas sheet, paid exceedingly well, the Mexican

Government was petitioned to consider the territory between Piru Creek and the Soledad Canyon, and extending west of the Mojave Desert, mineral land, and that no grant be extended taking in that territory; which petition was granted by the government. This discovery attracted hundreds of people from the coast districts between Santa Barbara and Los Angeles, and from their operations was obtained the first shipment of California gold to be received at the United States Mint at Philadelphia, which was sent by Alfred Robinson in a merchant sailing ship round Cape Horn. This shipment was 18.34 ounces in weight, and assayed \$19 an ounce, which is a high grade for placer gold. The most extensive operations carried on in this belt of gravel were in 1854, when Francisco Garcia took out of the San Feliciana Gulch, in one season, \$65,000 in gold. At the junction of Palomas Canyon and Sheep Creek, behind a boulder, extending out from a belt, a prospector found one piece of gold that was worth \$1,900.

Although the northern part of the state has attracted more attention than the southern counties as a gold field, due to the scarcity of water for placer mining, the latter has been at all times a gold producer. During the period between 1860 and 1878, one Los Angeles firm had purchased over \$8,000,000 worth of gold dust from the San Gabriel placers. As the ledges from which this gold was denuded or concentrated by nature, in the San Gabriel River, have been discovered and prospected during the last year or two, this district will soon yield the supply of gold which the placers once gave to Los Angeles County.

These well known historical facts are quoted to show the early discovery, richness and importance of the gold mining industry of Southern California, and the justification and cause of the City Council, trade organizations and Mining Exchange in completing arrangements for the celebration of the Golden Jubilee of California in Los Angeles.

The big parade on the afternoon of the 24th January will be participated in by Brigadier-General C. F. A. Last and staff, and the local companies of the National Guard, the N. S. and N. D. G. W., the latter for the first time appearing in public in full regalia.

Mrs. General John C. Fremont and Mrs. Houghton will be in line in carriages, as specially honored guests, and nearly all of the secret and uniformed organizations in the city will parade.

Randsburg is to have a special mining display and a number of Indians will also parade. Several of the manufacturing and business houses will have special floats, and the labor unions will parade in full strength.

The Governor has declared the day a legal State holiday, and the railroads have all made excursion rates to and from Los Angeles.

LOCATION WITHOUT A VEIN IN PLACE.

The custom in some districts of locating claims without first finding a vein in place is a quite common occurrence, and the legality of such a location cannot be established under our present law, as it is not properly made, nor until work has discovered a vein in place can the claim be legal, as the law stands at present. Necessity or custom has made the required amendment to the law now in force, to suit the conditions in such districts as Cripple Creek, Colo., Randsburg, Cal., etc., where the ledges do not crop to the surface.

The law on this subject is Sec. 388. Mining claims upon veins or ledges of quartz or other rock in place, * * * but no location of a mining claim shall be made until the discovery of the vein or lode within the limits of the claim located." The intention seems to have been to prevent agricultural land from being held as mining claims, in making discovery a necessary condition.

The law at present makes compulsory the existence of a vein or lode in place, and the condition of a capped or covered vein or deposit, which is now hid from view by surface soil or capping of rock, was a condition not provided for in the Act. Monumenting a piece of ground in the hope of finding a vein, is a form of locating minerals which does not generally meet with opposition from other parties except when it is the end extension of a vein of known value. For that reason adverse or contending claimants are seldom found to such claims.

The necessity for a change in the law regarding such locations has not been made apparent by disputes as to ownership in the law courts, as the matter of value is generally established by work being done to make the claim legal, or by its being abandoned. The law ought to be changed to allow the prospector to make a location whether a vein is in place or not, so as to give the most extended scope for the enterprise of the exploitation of doubtful ground, in the interests of the largest amount of mineral development. To limit the efforts of the prospector, or curtail the field for mineral discovery, is to stop the wheels of industry. The pursuit of industry in a congenial calling is the chief source of happiness among men, hence the double necessity of encouraging the largest amount of prospecting, as instances are common of valuable finds having been made where there was no vein or lode in place, prior to location. To prohibit the prospector from working on land even where the surface soil is of agricultural value, is to retard industry, hinder the development of wealth, and is the worst form of monopoly which exists in the United States, hence the necessity for making all minerals the national property of the people.

TUNNEL LOCATION RIGHTS.

By request we print the law on the subject: Section 391. "Where a tunnel is run for the development of a vein or lode, or for the discovery of mines, the owners of such tunnel shall have the right of possession of all veins or lodes within three thousand feet from the face of such tunnel on the line thereof, not previously known to exist, discovered in such tunnel, to the same extent as if discovered from the surface; and locations on the line of such tunnel, of veins or lodes, not appearing on the surface, made by other parties after the commencement of the tunnel, and while the same is being prosecuted with reasonable diligence, shall be invalid; but the failure to prosecute the work on the tunnel for six months shall be considered as an abandonment of the right to all undiscovered veins on the line of such tunnel."

The object of the section is to give to the proprietors of a mining tunnel run in good faith the possessory right to locate fifteen hundred feet of any lodes cut, discovered or intersected by such tunnel, which were not previously known to exist, within three thousand feet from the face or point of commencement of such tunnel, and to prohibit other parties, after the commencement of the tun-

nel, from prospecting for and making locations of lodes on the line of the tunnel and within three thousand feet, unless such lodes appear upon the surface or were previously known to exist. The term "face" of the tunnel means the first working face formed in the tunnel, and signifies the point at which the tunnel actually enters cover, and from this point the three thousand feet are to be measured. Proper notice of the tunnel location must be placed at the point where the tunnel enters cover, by erecting a substantial post, board or monument at that place of commencement upon which notice of the tunnel right is to be posted, giving the names of the parties or company, the course or direction of the tunnel, the height and width, and the distance to be run to the claim, and the distance to some well known object or surveyed post or point from the point of commencement. A line of posts or monuments are required to mark the direction or course of the tunnel on the surface, so as to prevent others from locating claims on the ground claimed under the tunnel rights. The whole distance of the tunnel must run through ground which has not already been located by other parties, that is it cannot run through the claims of others. A copy of the location notice must be recorded with the county recorder of the county, to which notice must be attached the sworn statement or declaration of the owners, claimants or projectors of the tunnel, setting forth the facts in the case and have it recorded. If the work of driving the tunnel is not undertaken with reasonable diligence, the parties working the tunnel will forfeit their right to all undiscovered veins on the line of the tunnel. As the Land Office takes special interest in the case of professional tunnel locators, the law has to be complied with to the letter.

THE TELLER RESOLUTION.

The law on the subject of bond issues is that they are to be made payable in coin, without specifying either gold or silver, and all outstanding bonds are made payable accordingly.

Mr. Gage, in his plan for revising the money system, proposes to make new issues of bonds payable, principal and interest, in gold coin. Mr. Teller, on the other hand, has introduced in the Senate a resolution declaring United States bonds payable in silver dollars, and that "to restore to their coinage such silver coins as a legal tender in payment of said bonds, principal and interest, is not in violation of public faith, nor in derogation of the rights of the public creditor?"

Thus, the issue between the gold standard and the bimetallic standard is pointedly made. In fact, it would be almost impossible to prevent reopening the money question in all its phases if any modification of the system is proposed. All sides are disposed to thrust the question to the point, and we anticipate a long discussion of the subject in both branches of Congress, though in the House it may be cut off at any time under the cloture rule. But we do not expect legislation to any extent, if any at all, on the money question, as the elements are such that it seems impossible that the two branches can be brought to concur upon any material proposition. The discussion of the subject will be sufficient to bring it prominently before the country, and to make it the issue in the election of members of the next house of Representatives.

The Teller resolution is in the precise language of the resolution that passed both houses of Congress about twenty years ago, by nearly two-thirds majority.

STIMULATION TO GOLD MINING.

The fact that so many nations have adopted the gold standard, and that consumption of gold in the arts and manufactures is on the increase, creates an unusual demand for the yellow metal, and, consequently, a great impetus has been given to the search for new sources of supply, and to more active working of mines that have heretofore been considered of indifferent value.

Whatever may be the demand for gold for monetary and other uses, the price will not be advanced, for the coinage laws of nations have already established what it is, and it is impossible that its commodity value will ever go above its coinage value, and certainly not but a trifle below, for those who want gold for other than monetary uses will melt and use the coin rather than pay a higher price for the bullion.

Since the gold standard has become so general, the civilized world seems to be impressed with the idea that it is necessary that the quantity of gold should be increased as much as possible, in order to supply the increasing needs of commerce. The gold now produced is worth no more than it has been in the past, nor will it be in the future. The quantity when coined that is worth 100 cents was fixed many years ago, and any change would alter values all along the line. Another reason why more energy is put into gold mining is that silver mining has become unprofitable, except under the most favorable conditions.

Great expectations exist in regard to gold production in Alaska, but it is very doubtful whether they will be realized; indeed, it is safe to assume that they will not be; for it is an almost universal rule that gold finds are exaggerated, and in most cases immensely so. If it be a fact that gold exists in immense quantities in the Klondyke and Yukon regions, the conditions are such that its production will be expensive and slow. We think it safe to say that the amounts that will find their way to the mints will be small as compared to those that it is hoped will be forthcoming. Efforts to produce in nearer localities should be redoubled, and we doubt not they will be as richly rewarded as those put forth in far off Alaska. Taking into consideration the easier conditions, and the more comfortable living in nearer localities, we are disposed to believe that those who have the gold mining fever will do quite as well to expend their energies this side of British Columbia. We hope that gold production in the world will be such in future as to supply all the basic money necessary to float a paper circulation adequate to the world's business. The serious question is can enough be produced for coinage and for other purposes?

MUNICIPAL INDEBTEDNESS.

It has been a practice for many years in this country and in many parts of the world for cities to go in debt for improvements and to meet deficiencies of revenue. London owes \$200,000,000, or \$44.69 per capita of its population. The debt of New York is \$81.08 to the person, and in classic Boston it is \$119.37 per head. The rule is general that all our cities are more or less indebted. Mu-

nicipal taxation is generally higher than for all other governments. Economy and retrenchment are more needed in our cities than elsewhere. It is a curious fact that though city government is nearer the people than any other, and practices more direct and extensive interference, they give less attention to its affairs than those of the state or nation.

If cities were to adopt the practice of paying as they go through the levying of taxes, it is quite certain that there would be less extravagance, that only necessary improvements would be made from time to time, and there would be more watchfulness on the part of tax-payers of the doings of municipal authorities. Putting hands into pockets and paying down is quite different from issuing bonds which are to be paid in the future.

OUR FOREIGN TRADE.

The features of our foreign commerce that will attract thoughtful attention are that imports have materially fallen off during the last year, exports have increased, and only about one sixth of the carrying was done in American ships.

It is but natural that importations should be less, for, under whatever tariff law may be enacted, production to supply home consumption is destined to increase more rapidly than population. Such has been the result in all intelligent and progressive countries, as organization has been developed and population has become greater. This country has now reached that stage where the people are forced to do more and more to give employment to the idle, and to utilize to the best advantage the varied resources of the country. The increase of exportations during the last year is accounted for by the extraordinary demand for bread stuffs, caused by short crops in several of the wheat producing countries in other parts of the globe. The more we produce generally the more will there be for exportation and the existence of surplus stocks of any kind operate as a stimulus to supply foreign markets. The aggregate of exports and imports is not equal to those of previous years, notwithstanding the large increase of exports.

The most serious feature of our foreign trade, however, is that the percentage transported in American bottoms is so small, it is a sad commentary on the maritime energy of the American people. It seems to be less in this than in any other field of enterprise. Doing our own transportation would accomplish immeasurably in enlarging our export trade. Our people have a good deal to contend with in competition with the British-French, Germans and even Italians, for they not only have possession of the field, but their respective governments encourage maritime enterprise by pecuniary assistance in one way or another.

The British budgets contain what they call postal estates, or, in other words, sums are appropriated to be expended by the postal department, to compensate for foreign mail service, and the money used to bolster up weak steamship lines or those which have sharp competition from foreign rivals. France pays tonnage bounties to sustain her merchant marine, and Germany and Italy grant direct subsidies.

This country has never adopted either of these methods to any great extent, and popular sentiment is adverse to them. In the young days of the republic, the policy of im-

posing discriminating duties was resorted to, and it had a strongly stimulating effect, but it was long ago abandoned, and in the Dingley law it was restored. Its usefulness at best can be but trifling comparatively, on account of commercial treaties which prohibit its application to imports from the chief commercial nations.

There is no field in which so much can be done to give employment to our working people, and to save paying out money to foreign nations for work that we should do for ourselves as in that of transportation upon the high seas. The nation that controls that transportation controls the commerce and, consequently, the wealth of the world. It is a subject the consideration which should not be neglected by the American people. Wisdom dictates that some effective action should be promptly taken.

Europe. The method is interesting, especially to mining men, and is practically as follows: The ore is ground to an impalpable powder or slime, called "lama," which is run into vats, where it is allowed to dry to a pasty consistency; this was then put on the "patio" in flat heaps, termed "tortas," of from one to even twenty tons. This is then worked by droves of mules or horses, being driven round and round; salt and bluestone (sulphur of copper) is added and at the proper time quicksilver. So the amalgamation goes on, following natural chemical laws and taking time enough to suit anybody but an American mining man. When the mass was worked, it was washed, and the bright quicksilver, charged with silver, was strained and retorted.

The illustration in this article shows the patio, or rather patios, of the loretto, haci-

scribed their wonderful richness at length. The War of Independence broke out and suspended operations; after independence was attained, the then Conde induced a London syndicate to send out Mr. John Taylor, a well-known mining expert (the founder of the now celebrated firm of John Taylor, of London, who just now are so heavily interested in South Africa). From his report, in 1824, the celebrated Real del Monte Company was organized in London. The company practically agreed to pay a rent of \$16,000 per year for the properties that were all flooded. In 1824, three ships, with 1000 tons of machinery, arrived in Vera Cruz, and after untold trials and tribulations, their cargoes were carried up from the coast. All this was done by English mechanics, under a Colonel Colquhoun, who had been a celebrated officer of engineers under Wellington. Yellow fever,



THE MINES OF PACHUCA.

We clip the following interesting and valuable article from the December issue of *Modern Mexico*:

"Tradition says that Pachuca was a mining camp, even in the days previous to the coming of the Spaniards. Be that as it may, it is well known that, immediately after the conquest, a mining camp at once sprang up there, and about 1534 it was made a town. Although today Pachuca is an extraordinary mining camp, putting on the world's market some \$8,000,000 of silver per annum, the district is really more interesting from its past records than its present productiveness.

Here, in 1557, the "patio" process was discovered by Bartholome de Medina, for the amalgamation of silver, and was in use here for nearly two centuries before it was used in

PACHUCA, ESTADO DE HIDALGO, MEXICO

enda, belonging to the Real del Monte Company.

One often hears nowadays of mining excitements. The Klondyke of the South African boom fills up half the daily papers, but the chance foreigner that visits the old mining town in the mountains of Hidalgo may be surprised to know that at one time it was the scene of a mining excitement that, considering the condition of things as they then existed, was a "boom" of no small extent.

The Condes de Regla were the owners of the most productive mines in the neighborhood, and had become so rich from exploiting them, that the first of them took out \$15,000,000 at a nominal cost. He built and presented to the King of Spain several men-of-war and 4,700 bars of silver.

In 1803 Humboldt visited these properties, then being worked by a latter Conde and de-

chills, and heat killed them by scores, but Anglo-Saxon pluck won the day; they built wagon roads and installed their machinery, one of their Cornish pumps is today draining the Dolores shaft—seventy years in use and as good as new.

Stock in the company rose from \$500 to \$8,000 per share. This was in 1826. At the end of twenty-three years the company had taken out \$10,481,475, at a cost of \$15,381,633, and in 1846 the stock was only worth \$12.50. A dishonest official advised the sale of the company to one organized in Mexico, knowing that there was a "bonanza" covered up in the Rosario Viejo. The disgusted Englishmen sold, and the buyers took out more than \$12,057,490 clear profit immediately.

From the time of the English excitement, there have always been a goodly number of Cornishmen in Pachuca, and there is a strong

colony of these natural-born miners there even today, and they are quite a feature of the place.

The history of the celebrated Biscaina vein, exploited by the English company aforesaid, is extraordinary. Records prove that during the last 300 years over \$200,000,000 in silver has been extracted from this single vein alone.

The city itself lies in a basin, and the surrounding mountains are everywhere scarred with the openings of mines. The town is very irregularly built; the streets narrow, crooked and steep. The most important buildings are the Caja, a handsome structure surmounted by towers, founded in 1670, by Don Sebastian de Toledo, Marques de Mancera, as a treasury for the royal tribute received from the mines, and as a place of sale of quicksilver, a government monopoly. It is now the office of the Real del Monte Co. The Casa Colorado, a public granary built in the last century by a philanthropic Spanish nobleman is also noticeable. Of modern structures, the little theatre is well worth a passing moment, it is extremely pretty, and, although small, commodious; it is named after the first Pachucanian mentioned in history, Bartolome de Medinas. There are several fine residences, among them the excellent modern residence of Captain Frank Rule, a well-known Cornish miner, who has been very successful in his mining ventures. In the little plaza is also a fine statue to the Washington of Mexico, Hidalgo, beautifully executed.

The lighting of the town and the power for the amalgamation works is run by electricity, generated by water power at Regla, over twenty miles away by a fine plant installed by the Mexican General Electric Co.

In the town is located a branch of the School of Mines, where the pupils receive practical instructions in the career they have embarked upon.

Pachuca is only a two hours' railway journey on the Mexican Central from the capital, and as there are several excellent hotels, it will always be worth visiting by the tourist, and it will always serve as a base from which several days can be very pleasantly spent in expeditions into the picturesque and extremely interesting surrounding country, notably an excursion to Regla, where there is a fine basaltic formation, only second to that of the Giant's Causeway, in the north of Ireland.

Dividends Paid by Mining Companies During 1897.

The following companies have paid dividends during the past year:

Name of Company.	Paid since Jan. 1, 1897.
Acta.	\$ 80,000
Alaska-Mexican.	54,000
Alaska-Treadwell.	225,000
Alice.	80,000
Alliance.	5,000
American Gold.	42,000
Anaconda.	3,000,000
Achoria-Leland.	72,000
Apollo Con.	100,000
Arizona Copper.	48,000
Atlantic Copper.	40,000
Bald Butte.	7,500
Big Seven.	3,000
Big Six.	5,000
Boston & Montana.	1,800,000
Bullion Beck.	70,000
Bunker Hill and Sullivan.	102,000
Calumet and Hecla.	5,000,000
Cariboo.	48,000
Continental Eureka.	98,000
Central Lead.	48,000
Champion.	51,000
Charleston.	10,000
Chloride Point.	5,000
Commodore.	20,000
Coronas.	4,500
Daly.	37,500
Deadwood Terra.	80,000
Della S.	10,000
Dutch.	7,500
Elkton Con.	260,000
El Paso.	5,393
Florence.	18,030
Fortuna.	110,000
Galena.	5,000
Garfield-Grouse.	12,000
Geyser-Marion.	63,000
Gold Coin.	45,000
Gold Coin of Victor.	10,000
Golden Cycle.	55,000
Golden Fleece.	6,000
Gwin.	12,000
Hecla Con.	30,000
Highland.	300,000
Holy Terror.	36,000
Homestake.	437,500
Hope of St. Louis.	110,000
Idaho, B. Con.	120,000
Iowa.	30,000
Iron Mountain.	5,000
Isabella.	67,500
Kearsarge.	40,000
Last Chance.	20,000
Le Roi.	350,000
Lillie.	8,100
Mercur.	286,000
Merrimac.	9,400
Mountain Ore Pur. Co.	160,000
Moon Anchor.	54,000
Morning Star.	141,600
Mt. Rosa.	10,000
Napa Con.	80,000
New Idria Quicksilver.	30,000
New York and Honduras Rosario.	180,000
Ontario.	202,500
Osceola.	150,000
Pennsylvania.	18,125
Portland.	360,000
Princess.	5,000
Quincy.	800,000
Rambler-Cariboo.	40,000
Reco. B. Col.	250,000
Sacramento.	15,000
Santa Rosalia.	20,000
Silver King, Utah.	450,000
Sloan Star.	50,000
South Swansea.	67,500
Standard Con.	40,000
Swansea.	50,000
Tamarack.	360,000
Utah.	4,000
Victor.	90,000
Western Mine Enterprise.	6,000
Whitewater (B. C.).	30,000
Totals.	\$17,188,148

\$125,375,685, while the silver coined during the same period was \$3,400,958 410. But foreign capital and Mexican capital have joined hands during the past two years, to the incentive of the governmental bonus, to develop the gold properties of the country. The government has made the annual mining tax on gold one dollar per pertenencia instead of ten dollars as in the case of silver and other metals. Americans have gone into the Yaqui gold country recently opened up by the government, and they expect to give a good account of themselves. John Y. Dowling is doing well at the placers near Campo Morado and Guerrero. General Frisbie is said to be making \$40,000 a month out of his gold mines beyond Tultenango. The Esperanza gold mines are about to be sold for \$6,000,000 yellow dollars at that.

Denver Mint Report.

Statement of bullion operated on at the United States mint in Denver, Colo., during the calendar year 1897:

COLORADO	GOLD	SILVER	TOTAL
Arapahoe County	\$38,40	\$ 2,51	\$ 41,91
Boulder	66,045.20	154,13	220,19
Clear Creek	84,051.59	639,60	723,69
Chaffee	50,575.51	247,97	300,54
Conejos	26,17	40	26,57
Costilla	649,64	4,54	654,18
Douglas	105,43	.57	105,94
El Paso.	3,206,705.11	5,070,73	3,211,775.24
Eagle	31,193.54	13,51	32,231.35
Fremont	399,33	7-14	399,37
Gilpin	792,471.13	5,753.79	797,624.92
Gunnison	53,35	.99	53,77
Grand	272,96	128	273,11
Hinsdale	284,07	128	285,19
Jefferson	596,34	2 79	598,04
Lake	9,435.78	57,09	9,503.85
La Plata	1,970.13	21,86	1,991.99
Las Animas	195,34	.67	195,01
Mineral	539,40	6-05	535,45
Montrose	1,291,27	12,75	1,303,72
Montezuma	1,361,29	14,08	1,375,38
Ouray	3,155,43	33,04	3,179,40
Park	19,575.23	127,18	19,702.47
Routt	4,457.45	67,63	51,501.08
Saguache	4,905.53	43,55	4,949.38
San Juan	11,925.70	85,35	11,703.13
San Miguel	252,021.51	3,111.59	255,135.10
Summit	48,485.22	488,72	49,973.94
Unknown	851,043.93	11,097.07	862,041.00
Smelters	6,433,203.40	866,68	6,443,099.44
FOREIGN TO COLORADO			
Alaska	5,983.59	38 54	5,542.13
Arizona	83,575.55	43,607	84,153.22
British Columbia	740.00	44	740.55
California	11,634.47	37,60	11,662.13
Idaho	3,079.65	3-03	3,079.65
Mexico	4,694.03	66,04	4,753.07
Montana	2,201.27	6,83	2,208.10
New Mexico	69,304.72	451,42	69,756.14
Oregon	2,128.08	9-47	2,128.59
South America	416,03	.46	416,47
South Dakota	151,057.73	326,08	151,383.81
Utah	39,193.09	647,23	36,842.32
Wyoming	9,655.99	37,27	9,693.27
MISCELLANEOUS			
Jewelry	33,159.84	291.71	32,451.35
Unc. coin	115.31	115.31
For coin	1,609.37	1,609.37
Redemptions	10,572.53	226.73	10,799.26
Total	\$12,192,365.65	\$10,585.40	\$12,223,451.05

Articles of incorporation of the Milwaukee-Alaska Gold Dredge Mining Company have been filed with the clerk of Park County. The principal place of business of the company is at Livingston. The object of the incorporation is to establish, manage and operate transportation lines and transport passengers and freight by steamboats, sailing vessels, stage or any other mode of transportation; to carry on mining operations; to operate and carry on steam and power dredges; to operate mining mills and machinery; to operate merchandise stores, provision stores, hotels and toll roads, and to deal in real and personal property of every description. The amount of capital stock is \$100,000, divided into 100,000 shares of a par value of \$1 each. William B. Dean, F. J. Toussaint and George J. Loutsorff, of Milwaukee are the trustees for the first three months, or until their successors are elected and qualified.—*Western Mining World*.

Silver and gold are by law standard money of Mexico, the Silver dollar weighing 416.79 grains Troy and containing 377.139 grains Troy of pure silver, the monetary unit of value. The coins of both metals—gold and silver—are legal tenders at the rate prescribed by law, the ratio of coinage being 16½ to 1. This is the theory of the law, but hitherto the Mexican miner, finding it less expensive to mine the white metal, has left the yellow metal to one side. The total coinage of gold in this country from 1537, when the Spaniards first began to mine on a serious scale, down to the close of the fiscal year 1895-96, was

ELECTRIC LIGHT AND POWER PLANT FOR SMELTING WORKS.

The largest smelter in Cauada is now running by electricity, being that of the British Columbia Smelting & Refining Company at Trail, B. C. Perhaps the most interesting feature of the plant is the water supply by which it is operated. The water comes from Trail Rock and Stony Creeks and is emptied into a reservoir about one mile from Trail. The reservoir is tapped by two steel pipes, one 22 ins., and the other 16 ins. in diameter, which carry the water to the edge of Smelter hill, directly above the electric station. Here the 16-in. pipe divides its flow, part going to the smelter for use in disintegrating the slag, and the remainder down the hill to the power house below through a riveted steel pipe.

The pipe is 22 ins. in diameter and runs at an average incline of 42 degs., with a head of about 200 ft., which gives in all a 260-ft. head at the water-wheels. Just before entering the



FIG. 1—SHOWING WATER WHEELS, GOVERNOR AND SHAFTING.

power house the pipe divides and feeds two 36-in. Pelton water wheels, which generate about 400 HP. From the Pelton wheels the power is transmitted by belts to the electric generators, which are three in number, supplied by the Canadian General Electric Company. Chief among these is the 200-kW power generator, which is the largest machine of its class in the province. This is to replace the steam engine in the smelter, which will result in an enormous saving in fuel. The current from the generator will be transformed into power by two motors of 125-HP each.

The other dynamos in a power house are a 60-kW alternator T. H. system, a 3-kW Edison type exciter, and a 15 light Wood arc machine. The switchboards are of fine Tennessee marble, with the latest improved instruments and finished with nickel-plated trimmings. —American Electrician.

WISCONSIN.

Lake Superior Gold Region.

The Lake Superior country seems likely to be an item in the future gold production of the world of no mean magnitude, and it may be well in my first letter to briefly outline the general condition and situation. This is all the more appropriate as the season

of prospecting for the year 1897 is at an end, there being as I write at the first of the year from one to two feet of snow all over the gold producing area, and the rivers being frozen. This is the season of realization and many properties are being sold, of which more will be said in my next letter, but exploring is virtually over until next spring, and this is the time to take an account of stock.

which are overlaid with rocks of the Huronian series, the prevalent rocks of the series being slates and schists. The Lake Superior trough is occupied by later rocks, mostly the eruptives of the Keweenaw series which have become celebrated as the home of the greatest dividend-paying mine in the world, the Calumet and Hecla copper mine, with some sandstones of the same series and a little

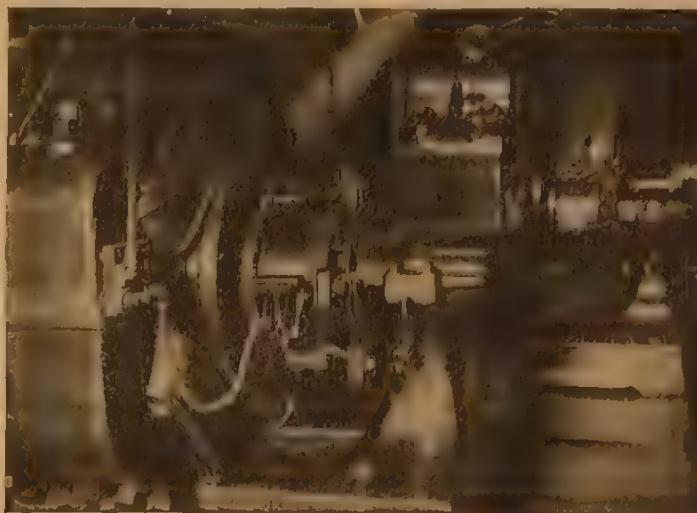


FIG. 2—TWO 125-HP MOTORS.

Potsdam sandstone on the borders of the lake. Fringing the Keweenaw traps which are confined to Lake Superior, are the earlier depositional beds of the Huronian Period which cover a large extent of country estimated at from 5,000 to 10,000 square miles of surface exposure. Underlying these are the Archæan plutonic and metamorphic rocks which protrude around the edges and in many places pierce through the younger rocks, and in places have made eruptions of even later date. Along the south shore of the great lake the Huronian series are noted for their production of iron, as are the same rocks in Minnesota west of the lake. But on the east of the lake and around the north side, and to the west, to the Lake of the Woods and Lake Winnipeg, and possibly beyond these rocks



FIG. 3—POWER GENERATOR AND ALTERNATOR.

are so far found more valuable for gold than for any other metal. There are, however, good gold locations in the former regions, and in the latter great deposits of iron, nickel and copper ores, which however up to this time have offered no chance for successful working, owing chiefly to the cheapness with which the same ores are worked on the other side of the lake, by reason of superior transportation facilities.

The reason for the greater preponderance of iron ores south and southwest of the lake basin is to some extent at least due to the fact that there has been a greater dip of the series which has naturally exposed the orebeds and owing to the great resistance of the iron-bearing strata to glacial erosion, has left them in large areas the surface formation, and consequently more immediately and cheaply available. To the east, north and northwest, the series as a whole lies more nearly horizontal, and the erosion, while it must have been tremendous, has been on lines parallel to the formation. In all of the rocks of this district there has been very little disturbance since they first laid down, there having been simply a gentle tilting, such crumpling as there has been being as a rule confined to small areas, though in many cases the twisting and upheaving has been tremendous tho' not extensive.

The general result has been a great area of the most easily prospected ground in the world, forming practically a great plain with only minor breaks. It would be expected that with so little disturbance, the veins would be found distinct and easily followed and this is the case; the veins being as a rule defined and as to number beyond computation. It is not hard work to find gold-bearing veins, and as the greater part of the vein matter carries gold which is from 80 to 90 per cent. free milling, the problem has been largely reduced to a business one. The country is well watered and timbered and the Huronian areas are especially provided with streams, so that communication is easy and development work is very cheap. Mining proper, while it takes a considerable initial investment is also very cheap and there is probably no extended region in the world where mining can be carried on for less money. Vein running one-half ounce to the ton is considered a fine thing if properly managed, though I think the average of the ore in the district will show probably as much as an ounce to the ton. The product of the gold mines has been as follows from the district:

1892.....	\$ 36,900
1893.....	32,960
1894.....	32,776
1895.....	50,281
1896.....	892,400
1897.....	205,800

This showing is commendable, though nothing like what it would have been, if the people about the region had had money. As it was, the prospecting was all done by poor men, who were not able to develop, and the poor laws governing the district enabled them to buy the land, gold and all, at about \$2.50 per acre, and thus tie up for a little money the more easily accessible properties; their only hope being to find some one to buy them; and as a consequence numerous properties, whether good, bad or indifferent nobody knew, were put on the market at from \$10,000 to \$15,000 per forty. While the field was new these went very slow but since a few of the large mines have become shippers more money has come in and sales and bond contracts have been made of late more rapidly. There are now shipping the following

mines: Sultana, 30 stamps; Mikado, 10 stamps; Regina, 10 stamps; Gold Hill, 10 stamps; Hammond Reef, 10 stamps; Saw Bill, 10 stamps; Foley, 20 stamps; Olive 5 stamps. The four first are near Rat Portage, the next two near Saw Bill Lake, and the last on the Seine River. All but the Sultana have gone into operation this last year. There are also now ready for operation the following: Little American, 10 stamps; Lucky Coon, 5 stamps; Ferguson, 5 stamps; Independence, 5 stamps; Huronian, 10 stamps and five other development plants, using 10 stamps. In addition to these are custom mills as follows: Little American, 5 stamps; Rat Portage Reduction Works, 25 stamps; Keewatin Reduction Works, 20 stamps; the latter will have 60 stamps as soon as they can be put up. Ore is being handled at all these.

The outlook for these mines is good and they all have the reputation of making their owners a large amount of money. The oldest of them was put upon a paying basis under great discouragements; as the story goes, the owner pledged his wife's diamonds, and lost them on the proposition, but his wife has plenty of diamonds now, and his success has made the task of raising capital for work in the field a much more agreeable one. Bonanzas have been claimed by some of the enthusiastic ones, but so far have not materialized, but that there are many fine business openings in gold mining around Lake Superior I have no doubt.

Josiah Bond.

WEST SUPERIOR, Wis., Jan. 6, 1898.

ELECTRO-METALLURGY.

In the January 5th edition of *Electricity*, John B. C. Kershaw, F. I. C., of London, has the following interesting article upon the Siemens & Halske Gold Recovery Process:

This process for recovering the gold from the liquors obtained by the treatment of the crushed ore, or the tailings, with dilute potassium cyanide solution is rapidly making headway, and its application to the solutions resulting from a still more modern process for successfully leaching slimes with cyanide is calculated to further extend its field of usefulness.

Although this process is not being worked upon an industrial scale of operations, to the writer's knowledge, in any European country,* yet as the whole of the preliminary work was done in Germany, the process is founded upon an observation made by one of the heads of the firm of Siemens & Halske in the year 1887 when performing some experiments upon the electro-deposition of gold. It was perfected so far as laboratory experiments permitted in Berlin between that year and the year 1893, when arrangements were made to have the process upon a fairly large scale in the Rand district of South Africa. A plant capable of treating 100 tons tailings daily was erected at the Worcester works of the Rand Central Ore Reduction Company. This installation was a complete success, and the progress since that date has been remarkably rapid. The last report issued by the directors and manager of the Rand Central Ore Reduction Company contains the following list of mines where the Siemens & Halske recovery process is now in operation, with the monthly capacity in tons of each:

1. Gunsberg, G. M. Co., tailings	3,700
2. Worcester, tailings	3,260
3. Van Ryn West, tailings	7,000
4. Van Ryn Estates, tailings	7,000
5. Bonanza, tailings and slimes	6,000
6. May Consolidated, tailings	1,000
7. Balmoral tailings.....	3,420
8. Glynn's Lydenburg, tailings	3,200
9. Crown Reef, slimes	3,200
10. Knight's, tailings	1,000
11. Simmer & Jack, tailings	8,000
12. Robinson, slimes.....	7,000
13. Central Works, slimes.....	6,000

In addition to the above 13 mines, the process will shortly be at work at 18 others where plant is under course of erection. If these figures are trustworthy the process has therefore evidently gone to South Africa to stay, and if the policy of the Rand Central Ore Reduction Company is continued by the new company which has assumed the control of the patent rights in South Africa, it would only appear to be a question of years before the old zinc box method of recovery is entirely displaced.

The Siemens & Halske process depends upon the deposition of the gold from very weak cyanide solutions by means of an electric current of feeble intensity.

The two difficulties that had to be overcome in designing a suitable depositing vat for the conduct of this operation arose, the one from the activity of the cyanogen gas liberated at the anode, and the other from the extreme dilution and poverty in gold of the solution requiring electrolysis. Nor was the selection of a material for the cathodes an easy matter, as gold, the most suitable metal, was excluded by its high cost. Carbon, the usual anode material, could not be used because it disintegrated easily in the solution and the contamination of the effluent with finely divided particles of carbon led to difficulties in leaching. After many experiments with different materials Messrs. Siemens & Halske selected iron—the cheapest metal—as anode material, and thin sheets of lead as cathodes to receive the deposit of gold.

The difficulty of extreme dilution was overcome by causing the electrolyte to pass between several hundred pairs of electrodes before issuing finally from the last of the depositing vats. Further, no attempt was made to remove the whole of the gold from the cyanide solution, the continual return of the effluent to the leaching vats rendering a complete extraction of gold unnecessary. The action of the cyanogen upon the anodes of course leads to their solution and to the formation of cyanides of iron and prussian blue. As iron is cheap, this loss of iron does not very greatly add to the cost of the process. It is stated that the lead cathodes are allowed to remain in the vat until they are coated with an amount of gold equal to from 2 per cent to 10 per cent of their weight, but the figures quoted below show that this proportion is not attained in practice. The lead is then removed from the vat, and is cupelled in order to recover fine bullion.

In the Rand district the cupellation of the lead bullion is undertaken by the Rand Central Ore Reduction Company, who buy all the lead bullion from the companies using the S. & H. recovery process on its assay value, and thus enable these companies to dispose of their product on advantageous terms in the vicinity. The weight of auriferous lead purchased in this manner in the Rand district during the twelve months ending June, 1897, was 2,409,130 oz.; the weight of fine gold obtained from this on cupellation was 31,588

*An auriferous serpentine found at Gorzente in Piedmont containing 1/4 oz. gold per ton, is about to be worked by an electrolytic extraction process; but no details of this are yet published, and it is probably not the S. & H. process which is to be used.

oz., valued at £16,875. The Rand Ore Reduction Company also cupelled 1,580,772 oz. lead bullion for other companies in the same period, and produced therefrom 57994 oz. of gold, valued at £214,577. Working out the mean per cent. of gold contained in these two aggregate weights of lead bullion, we find in the former case it amounts to only 1.3 per cent., while in the latter case it amounts to 3.6 per cent. The report does not clearly indicate the origin of the greater of the two aggregate weights of lead bullion, and it is possible that it was obtained from works using non-electrolytic processes.

The only description of the actual plant at the mines used for operating the Siemens & Halske process that has yet come under the writer's notice is contained in a paper read by A. von Gernat before the Chemical & Metallurgical Society of South Africa in 1895. This paper gives details of the plant erected at the Worcester works of the Rand Central Ore Reduction Company for the treatment of 3,000 tons tailings per month, or 100 tons per day. Four electrolytic vats were used, each 70 feet long by 8 feet wide and 4 ft. deep. The anodes were plates of iron 7 feet by 3 $\frac{1}{8}$ " thick, so arranged in the vat that the solution was compelled to take a vertically zig-zag course in its passage from one end to the other. Slips of wood along the sides and bottom of the vat held these anodes in the required vertical positions; 1,086 lbs of iron were used per month for anodes. The plates were enclosed in coarse canvas bags, in order to retain the prussian blue and to prevent short circuiting. The thin sheets of lead used as cathodes were stretched in wooden frames and suspended between the anodes.

Calculation leads one to assume that the number of pairs of electrodes in each vat at Worcester was 71, spaced about 1 $\frac{1}{2}$ " apart. An EMF. of 4 volts was sufficient to yield a current of .05 ampere per square foot at this distance. A current of 600 amperes was passed through the four vats, the electrodes being coupled in parallel, not in series. An energy consumption of about 3 $\frac{1}{2}$ K.H.P. was therefore theoretically required to operate the process; in practice an engine of 5 K.H.P. was found to be fully adequate. In the Worcester plant a cathode surface area of 3,000 square feet per vat was obtained, since both sides of the lead sheets functioned as cathodes. The vats were covered and locked, and only required opening about once a month for removal of the gold-coated lead and for insertion of new lead cathodes in place of those removed. The consumption of lead was about 750 pounds monthly, and was valued at 1 $\frac{1}{2}$ d. per ton of tailings.

Two estimates of the working cost of this process, both by A. von Gernat, one made in 1894 (A) and the other in 1896 (B), are given below. These estimates include the cost of cyaniding but not those of cupellation; and no allowance is made for royalty charges, or for interest and depreciation charges on the electrical plant and machinery. These charges will, however, be small. The estimate A is for a plant with a capacity of 100 tons tailings per day, while B is for one capable of treating 500 tons daily. The items are expressed in £ per ton of tailings treated:

	£	£
Filling and discharging	.200	.200
Cyanide	.120	.068
Lime	.024	.010
Caustic Soda	.010
Lead	.022	.030
Iron	.044	.006
Labor—white	.104	.100

Labor—native	.038	.038
Coals	.092	.080
Stores and general charges	.064	.064
		—
	£.718	£.696

When the working costs of the older zinc box process of recovery are compared with those just given, the gain in economy by the use of the Siemens & Halske process is seen to be considerable. Rose* states that the cast varies from £.720 to £.240 per ton according to the local conditions, the average being about £.960, while Bissler† states that the costs are about £1.72 per ton tailings treated the gain in the case of the S. & H. process is partly due to a saving in cyanide, and partly to the greater convenience and simplicity of the monthly cleaning-up process.

The former results from the weaker solutions of cyanide used for leaching the tailings. Weaker solutions, however, signify that greater time must be given to the leaching operation, and the exact point at which the value of the saved cyanide no longer balances the value of the extra time is by no means easy to determine, and differs for each locality and works. The relative advantage of the two processes in the Transvaal are further complicated by the fact that only one of the processes is covered by valid patents, and requires the payment of a royalty for its use. The decision of the Rand Court in the great trial of last year has rendered the McArthur Forest process a free process in the Transvaal, and the extension of the electrolytic recovery process under these conditions is a striking testimony to its worth. The future progress of the electrolytic recovery process will, therefore, depend very largely upon the policy pursued with regard to royalty charges. These have recently been reduced from 3 per cent. to 2 per cent., and it is intended as the use of the process continues to extend to reduce them still further.

The Transvaal patent rights have lately passed under the control of a new company, the Gold Patents Company, Ltd., with a nominal capital of £600,000. The Rand Central Ore Reduction Company, Ltd., and Messrs. Siemens & Halske of Berlin have each received £240,000 of shares in the new company as the equivalent of their interest in the process, and the remaining £120,000 of shares has been taken up by local financiers.

In concluding this brief review of one of the most successful electro-chemical processes, it may be pointed out that somewhat similar processes have been patented and worked in the United States by Eltonhead & Langbimer. The process worked by the latter at the works of the Wyandotte Mining Company in Washington, Alabama, would appear to have been exactly the same as that of Siemens & Halske, but the writer is not aware whether it is still in operation.

The Siemens & Halske method of gold recovery, successful as it has been, cannot be regarded as perfect. Neither the anodes nor the cathodes answer the requirements of a perfectly satisfactory process. Any improvements that occur may, therefore, be expected to concern these, and the iron and the lead may be replaced by metals or materials of a more durable character.

*"The Metallurgy of Gold," Dr. T. K. Rose, London, Griffin & Co., 1896, p. 101.

†"The Cyanide Process," M. Bissler, London, Crosby, Lockwood & Co., 1893, p. 39.

CORRESPONDENCE

CALIFORNIA

Mojave Mining District.

(From an Occasional Correspondent.)

EDITOR JOURNAL:—As a subscriber to the JOURNAL I have concluded to say a few words about our camp, which has never been mentioned before in your journal, but which we hope to see more prominently mentioned the coming year.

There promises to be a great deal of heavy development work done in the district during the coming year of '98. A great deal has already been done, but so far without the aid of capital.

All the miners in the district now realize the need of legitimate capital to put in a mill to reduce their ores, the present method of handling being a very heavy tax on the camp. Selby's charges for treatment being £1.3 per ton. S. P. R. R. £3.85 and hauling £1.25 in carload lots. That mining can be done in this district under such a handicap and also pay its way in the development, is a very strong evidence of the pay ore in this district and that there is a great opening here, close to Los Angeles, for mining capital and it will cost very little to investigate it, as it is right at your doors, without chasing off to snow-bound Alaska. The district is about four miles from the town of Mojave, the central and highest point being Soledad Peak.

I will try to enumerate a few of the properties that have considerable work done on them and a great deal of ore on the dump ready for a mill to handle. Of these the Gypsy has shipped the most ore and has between 150 and 200 tons on the dump, the property at present being closed down and under bond.

The Grey Eagle comes next with a two-foot body of ore at fifty feet in depth. Not far away is the valuable property being developed by Baker and Conklin, known as the Elephant, showing a four foot vein of £100 ore. The Mojave Bonanza and Independence come next, then the Double Standard group, one of our stock companies, which proposes to open up in big shape during the coming year. The White Peak group embraces some very valuable properties and they propose developments on a large scale during 1898.

The Ojai has been making such a good showing that it is also under bond. The latest strike has been made by Donald & Rodgers on the Income—they have just shipped a carload of very rich ore to Selby. There has been considerable work done on this property, two shafts being down with an eighty-foot drift in No. 1 cutting a number of very rich stringers at the eighty-foot level. The prediction of mining men who have seen the property is that it will prove worthy of its name.

The Bowers group of mines has been recently bonded to an English company and the opening up of these properties will do a great deal to advance the interests of the camp.

Of the three stock companies here only one of them as yet has done any work. Such companies are proverbially slow, which is one of the main reasons miners do not put more faith in them. There can be no question that such companies, when backed by capital, are a great blessing to the miner and prospector.

As I have stated before, there is a place in this district for legitimate capital which will give good returns on the investment. We require a mill to handle our ores and the miners of this district will be glad to contract with any responsible party who will put one in.

A DESKRT MINER.

The Product of Tuolumne County Mines for 1897.

The actual product of gold from 28 mines in this county gave the following value, \$1,900,500, in gold coin, for past year. The above figures may be relied on as correct. We have 517 stamps in the county. The number of stamps actually employed to produce the above returns were 281, leaving 236 more or less idle—on old mines now being reopened up. The new stamps to be erected the coming year will aggregate 225, as the known accumulation of extracted rock on the several dumps warrant such an additional crushing power; furthermore, the writer is well informed by the several owners of the mines in question that such an increase in stamp mill is necessary and will be erected—which will make a grand total of 742 stamps.

There are five chlorination works in Tuolumne, five of them in constant operation. One cyanide plant in full work and two more to be erected this year. The above will give your readers an idea of the wealth of old Tuolumne. New mines are being opened all the time. Good prospects are being found in the mountains on virgin ground almost daily. A number of old water-logged mines are being reopened, that have been abandoned since the early days of mining—which would not pay then. Few of them were developed in a systematical manner, and the expense of mining in the days of black powder, and no method then of saving the values of sulphurates, which were allowed to run to waste down the creeks. Today all that is changed. Mining is now conducted as a science, and on strict business principles. Everything of value is saved and treated for what it is worth. Labor-saving machinery and power drills expedite the breaking of rock. Our mills, with the most improved concentrators, save what was formerly lost. Base ores of every kind can now be worked to a profit, even if some of the ore has to be shipped to the smelters in San Francisco—thanks to the new S. R. R. Smelters will soon be erected in this country, as the necessary fluxes can be imported at a cheap rate.

Tuolumne offers a good field for the smelter—already a move is about to be made in that direction, and thus again the mine-owner will be benefited by having his base ores treated and smelted at home. It is advancement at every point along the line, and renewed prosperity must of necessity follow—hence the output of the precious metal in the next few years to come, as every available ore, refractory or otherwise, will have the ways and means at command to extract in our mines will be enormous. Our temperate climate is perfect, healthful and invigorating. All mining operations can be carried on all the year round. Where can such a mining section be found its equal the world over?

W. FRANK DRAKE, E. M.

LETCHER, FRESNO COUNTY, CAL.,
January 8th, 1898.

EDITOR JOURNAL:—Your readers will doubtless be pleased to hear that the Copper King mine is showing up splendidly, the shaft which is 12x8 feet in the clear is now

down 105 feet with a fine body of ore in the bottom. The mine is equipped with a steam hoist and a H. P. boiler with two pumps. Twenty men are steadily employed also several teams which are engaged in hauling wood for steam. It is reported that a smelter will be erected inside of six months. There is fully 800 tons of good pay ore on the dump, to say nothing about what there is in sight. H. Grafton Vercor is the superintendent and James Noonan formerly of the Santa Rosa mine at Perris in Riverside county is the foreman.

The Blue Rock mine located three miles east of the Copper King is one of the most promising mines in the county. The five stamp mill which is in operation on the property is kept running day and night on good ore. A new Triumph Concentrator has just been put in. Twelve men are employed under the superintendence of F. McCall, who is an able manager.

Lloyd's mine 3 miles from Letcher is working 6 men and the 5 stamp water power mill is steadily running with good results.

Yours faithfully,
H. G. VERCOR.

Miscellaneous Mining News.

ALASKA.

Sale of a Cook Inlet Placer.

Harry G. Blackwell, the well known Spokane mining man, Francis N. Gove, a New York capitalist and their associates have purchased 240 acres of rich placer ground on Indian Creek, a tributary of Turnagain Arm, Cook Inlet District, Alaska. The deal, which has been in process of consummation for some time, involves a purchase price of \$100,000.

The placers are to be worked by the hydraulic process and, from innumerable tests made, Mr. Blackwell thinks the ground will yield an average of 70 cents per cubic yard.

Average Assay of \$206

The rich strike that Messrs. Winter, Pond & Davies made recently on the southern arm of Berner's Bay continues to improve with the number of assays made. The average of these assays is \$206. A large cabin is being erected and a 50-foot tunnel started. The ledge is four feet wide on the surface.

A Large Deal.

The Black Maria, the oldest quartz mine on the Alaskan coast, was sold last week by Dick Willoughby to the Thomas Investment Company, of Seattle, for a figure over \$100,000.

The deal was consummated through W. W. De Long, acting for Willoughby, and J. R. Pidduck for the Investment Company.

These parties, with Willoughby, A. Williams and E. Locke sailed for Alaska on the steamer Farallon, to look over the property.

The Black Maria was located 20 years ago. It is a group of eight claims. About 9000 feet above sea level, a tunnel runs 160 feet on a ledge over 30 feet wide. A shaft has been sunk 9000 feet below the tunnel to a point 27 feet below the salt water level. The ore in the shaft runs from \$27 to \$50 a ton, but as it is concentrating ore, expensive machinery is necessary for its development.—*The Alaska Mining Record.*

ARIZONA

There is no doubt that Arizona has some great mines and Mohave county has its share of the good ones. One of the best mines in Mohave county is the Oro Plata owned by John W. Gerritt of Mineral Park. The net profit of the Oro Plata mine for December was \$10,000. The vein can be traced for 2700 feet. The ore averages 650 ounces in gold, 57 ounces in silver and 87 oz. in Lead. The mine is worked on a royalty by lessers and 35 men have been employed for the last few months.

There is no doubt that Arizona has some great mines, and Mohave county has its share of the good ones. One of the best mines in Mohave county is the Oro Plata owned by John W. Gerritt of Mineral Park. The net profits of the Oro Plata mine for December was \$10,000. The vein can be traced for 2,700 feet. The ore averages 650 ounces in gold, 57 ounces in silver and 8 per cent. lead. The mine is worked on a royalty by lessers and thirty five men have been employed for the last few months.

—
CALIFORNIA.

KERN COUNTY.

Ramish & Marsh have begun work on a new 50-stamp mill to be erected at Barstow. The property is to cost \$75,000, and will be owned by the backers of the Randsburg Railway. A smelter, to cost in the neighborhood of \$200,000, is also in contemplation by the same parties.

SAN BERNARDINO COUNTY.

The Gold Bronze Mine and Mill, together with all the appurtenances and fixtures of every kind, located in the Vanderbilt mining district, and belonging to the Vanderbilt Mining and Milling Company, were sold at receiver's sale last week at the court house at San Bernardino, the sale being made by Receiver W. N. Crandall. The property was bid in by J. M. Hale, of the J. M. Hale Company, dry goods merchants of Los Angeles. His bid was \$1470.35. This amount is merely the claims which were a first lien on the property. The total amount of indebtedness on the company, a lien on the mine, was \$23,000 but the secondary claims will be unprovided for unless theolders take the plan of redeeming within the statutory six months. The mine and mill have been standing idle for three years, being tied up by the litigation. It is counted a rich mine and it is situated at the terminus of the Nevada Southern Railroad. It is expected that the sale will result in the mine being reopened as soon as the question of redemption is settled.

SHASTA COUNTY.

Three million pounds of copper ore were fired at Keswick Shasta County last week to burn out the sulphur. It is piled up along the line of the Iron Mountain Railroad, and is the largest pile of ore ever fired at one time by the Mountain Copper Company. The fire will continue to burn for from six to twenty days, when the ore will be ready to be conveyed to the smelter. The volume of sulphur smoke cast into the atmosphere is something appalling to those who get the benefit of it. Fortunately, the wind takes it east-

ward, where there are no dwellings. Vegetation for miles around Keswick has been killed. The forest trees and orchards for three or four miles around are dead. But people do not grumble. The smoke, rarely disagreeable, is evidence of the great industry that has made this smelter town the liveliest mining camp in the whole northern half of the state. A pay roll of \$30,000 a month is a good apology for the sulphur smoke.

COLORADO.

Cripple Creek Notes.

The Lucky Guss is being opened with new level at 760 feet, and ore is being produced to meet the expense of development.

A carload shipment has been made from the Reid & Phillips' workings on the Dante. This ore comes from the third and fourth levels.

A 15-ton shipment was completed last week by sub-lessees on the Trilby, situated on the west slope of Bull Hill and owned by the Moose Company.

James Doyle, who is working the Reform, on the south slope of Bull Hill, under bond and lease, intends to push development. The air compressor in use on the Providence is being put in place at this mine.

Whitehorn.

Bray's Hill, which forms the Western boundary of Whitehorn is still a center of attraction. On the summit of this hill is the Chance, being developed under the supervision of W. H. Condart. The first lead uncovered by him was of quartz and hematite, samples of which attracted attention to the richness of the hill. Successful pannings were made and the surface assays were \$6.20, \$12.60, \$18.40, \$30.17, \$32.20 and \$33 in gold to the ton. Feeling that the main lead had not been cut, a new shaft was started, which is now 5 feet down, showing a vein nine feet wide, lying between walls of trachyte and granite. The vein matter is quartz, hematite and decomposed granite.—*Colorado Springs Mining Investor.*

Central City.

The new plant on the Cook mine will consist of a double drum 100-horse power engine, two 80-horse power boilers and a four-drill air compressor.

Boston men have been looking at the Lincoln in Illinois Central district, and it is said that operations will be started up at an early date with probably a new plant of machinery.

The operators on the Dump Lode, on Bobtail Hill report a better showing than ever in that property, and some satisfactory returns are being received from shipments made. Local miners who are leasing the Branch, an adjoining property, report an improved showing with additional depth gained.

Copper Rock.

Austin Richter & Co. have let a contract to drive a tunnel into Free Gold Hill on the Together Lode, a group of claims owned by these gentlemen will be cut at a good depth through this adit.

W. N. Bowman & Co., of Denver have let a contract to drive the Empire tunnel.

Wessel & Co. have started to work the Minnie, the west extension of the Meadow Lark.

The company operating the Forrest mine are sinking the shaft another 100 feet. Three eight-hour shifts are employed. It is the intention of the company to erect a large mill next spring.

A large number of men are working on the Teagarten properties. The mill is running night and day.

The Mining Industry and Review gives the following regarding the output of Summit County:

"The following mills have been running with more or less regularity during the year: The West Side concentration mill; Blue Hill, concentration; Governor, concentration; Hamilton stamp mill; Wire Patch, six Huntingtons; Juniata, five-foot Huntington and Embry tables; Semper Idem, two Huntingtons and bump tables; Breckenridge Mill, twenty stamps; Jumbo, thirty stamps; Galena, fifteen stamps; Jack, fifteen stamps and electro-cyanide (now being remodeled); Carrie, ten stamps, rapid drop, electro-cyanide; Washington, twenty stamps; Juniata, large Huntington; Golden Edge, rapid drop stamps and a Wilfley; Blanchard, five stamps; the Wilfley concentrator at Robinson and the Kilton sampling mill at Breckenridge; the IXL Mill was remodeled and made a number of shipments of concentrates.

The output of Summit County for the year just closed is as follows:

Placer gold.....	\$ 65,000
Other gold.....	275,156
Silver.....	200,000
Lead.....	160,500
Copper	6,000
Total.....	\$706,656

Denver men have opened the Boulder County mining season for 1898 by taking in the Kestler group of three full claims, located in Gold Hill camp. The purchasers are W. F. Quarrie and John McDermott, of Denver City, and the consideration is \$28,000, part cash and part installments. The sellers in the case are Mr. and Mrs. Charles Kestler, known to old-timers as the landlords of the Merchants' hotel Market street, near the United States branch mint. They have been residents of Gold Hill since 1893. The mines transferred belong to the free milling class, with some smelting ore worth \$40 to \$400 per ton. The milling ore yields \$16 to \$20 under the stamps. On claim No. 1 there is a one-foot ore vein and 275 feet of levels. Claim No. 2 has a 40-foot shaft and a 3-foot ore vein, while claim No. 3 has a vein over 5 feet wide and a shaft thirty-five feet in depth. The new owners have commenced work, and when the claims are in shape, room will be found in the workings for 150 men.

Cripple Creek, in El Paso Co., has added more than twelve millions of dollars to the world's output of gold during 1897, an increase of 40 per cent over the previous year. Colorado's gold production for the past year is nearly \$22,000,000, being one-third of the total gold product of the United States, a sum equal to \$146 for each man in the state, or \$2,200 for each man engaged in gold mining. Colorado has done her share towards increasing the general prosperity of the nation, and enters upon the new year with hope and confidence.

GEORGIA.

John B. Atkinson, James R. Rush and Paul M. Moore, of Earlington, Ky., and M. C. Cain, of Norton's Gap, Ky., all of the St. Bernard Coal Company, of Kentucky, have incorporated the Tahoneka Mining Company. The purpose of the company is to mine gold. The company has been organized with John B. Atkinson president and treasurer and Paul M. Moore secretary. The incorporators constitute the board of directors. The capital stock is \$150,000.

IDAHO.

Messrs. John A. Manly, mayor of Grand Forks, B. C., and A. Klockman have secured a controlling interest in the Continental mining property, near Benner's Ferry, and are developing it. It was discovered some six years ago, and shows a large body of galena. Development work has been hindered by quarrels among the owners.

A run of 27 days at the Crescent mine, owned by Willis Sweet, with a 5-stamp mill, is said to have given a clean-up of \$9,712.

Providence Gold Mining Company is developing a group of four claims on Ruby Creek. The ledge is said to be 40 feet wide, carrying good values in gold, with some silver. Lack of transportation facilities hampers development work.

The Monolith mine at Shoup has recently encountered one of the richest bodies of ore ever discovered in the state. Two weeks ago the main tunnel ran up against a dyke which seemed to cut the ore off. It was cut through and found to be about seven feet thick. A winze was then sunk from the breast of the tunnel about ten feet when it struck the ledge. A round of holes was put in the ledge and when fired disclosed a vein of quartz about two feet thick, literally alive with free gold, which is estimated to go away up in the thousands.

MISSOURI.

The National Lead Company, through H. J. Cantwell, on December 30th, acquired 600 acres of lead lands in the Flat River district, St. Francis County, the consideration being \$125,000 in cash. A six months' option on another tract of 600 acres adjoining the first was also secured, the price to be paid being \$267,500. All the land was the property of Judge William R. Taylor, of Farmington. The National Lead Company began prospecting three months ago in the Flat River district, on the advice of Mr. Cantwell, and large quantities of ore were found.

Nine counties in Missouri produced lead and zinc last year in such quantities as to secure observation and report. The number of shafts operated was 547, the total average numbers of miners employed 3687, and of other help 1687. The number of men prospecting at the close of the fiscal year, June 30, 1897, was 990, making the total men employed in and about the mines 6364. The lead product amounted to 67,404 tons; the zinc product, 93,148 tons; the average price received for both high and low grade lead was \$27.62 per ton; for zinc ore, \$18.32 per ton, with total receipts for lead product of \$1,862,122.69, and from zinc \$1,706,947.53;

a total for both of \$3,579,070.22. In connection with the lead and zinc, there was an output of tiff of 2,000,000 pounds; tripoli, 2,800,000 pounds and barytes, 16,000,000 pounds.—*Age of Steel.*

The Central Mining Company, with a 10 acre lease at Midway, at 140 feet, has developed a large face of free zinc ore in soft ground. The large steam concentrating plant will start this week. One rich run of zinc ore on the 100 foot level paid over \$25,000.

P. E. Mining Company has two lots on the Circle Mining Company's lease of Oronogo, and is building a large steam concentrating plant that will be finished in two weeks. It has developed a 50-foot face of disseminated zinc ore in shooting ground.

MONTANA.

Frank Kallis is making a shipment of two tons of \$50 rock from the McKinley, a prospect which he is developing, situated on Sand Creek, Madison County. Wm. Cauble, the pioneer miner of the Hinch Creek copper belt says that he intends putting in the winter developing the claims he owns in that section

The great Ruby mine keeps right on coming to the front as one of the largest and richest producers in the state. This week the lead was cut on the 300-foot level, and it is found that the big ore body continues to go down, and is becoming richer than ever.

A force of two men is now engaged in doing development work on the Blaine.

G. D. Beattie and Amos Calvin are obtaining a patent to the great Western lode, a most promising-looking property located near Bernice. The claim has an immense lead of rich iron ore, carrying good values in gold.

King Solomon.

E. Redding & Son have erected a steam hoist and have put a force of miners at work on the 100 ft. level breaking and sacking ore. Thirty thousand dollars has been shipped from this prospect during the past six months. The ore averages as shipped 200 oz. silver.

Peck-Montana Company

At Corbin will improve its mill by adding machinery to handle crude ores. Heretofore the company has only been able to rework the tailings from the old Alta mill, 80 tons of tailings per day being put through a single Peck machine, making about 15 tons of clean concentrates. By the addition of crushers and rollers they will largely increase the usefulness of the mill. Both electric and steam power are used, as the Pelton wheel, owing to cold weather, does not furnish sufficient power alone.

Joe Garmean has secured capital to sink an additional 100 ft. on the Golden Gate mine and will keep the concentrator running. A recent shipment of two cars of crude ore to Butte gave \$20 per ton net returns.

It is reported that the Montana Smelting & Mining Company is to settle with its creditors and resume operations. Work has already started at one of its mines, the Lincoln, in Bear Gulch. Butte capitalists are said to be interested in a reorganization of the company.

NEVADA.

Charley Roe of Bristol proposes now to work on the gold-bearing ledges which he located last spring in old Fairview district, just north of Bristol, and where the surface showing is considered good.

We are informed that the owners of the Van Duzer placer claims have everything in readiness for beginning operations as soon as the spring thaws will permit of working. The workings will be prosecuted with improved machinery and more systematically than last year, and a corresponding increase in the output is confidently predicted for the coming season.

McLeod and Lane at the Charley Ross group of mines at Deer Lodge, are providing for work on their properties. A large boarding and bunk-house is being erected which will be one of the best houses in any mining camp hereabouts when it is finished. It is being built of hewn logs, none less than two feet square, laid in talc taken from the Charley Ross claim. Some of this talc assays over \$100 a ton in gold, but that fact wasn't known until after the stuff was used for mortar, and it was too late to take it out. The building will be finished off in good shape and will be warm in winter and cool in summer.

NEW MEXICO.

Work is being rapidly pushed on the new mine at Gallup, which is already christened, rightly or wrongly, the Jerome Mine, and we hope it may be a big producer of the carbon staple at an early day.

Jan. 1st was pay day at the Snake group of mines, at Hillsboro, in Sierra County, N. M. Some \$6,000 were paid out to the leasers.

On the Confidence mine, in the Mogollon district, Sierra County, N. M., 65 men are employed and there is an opening for 20 more good miners, who can find employment. One hundred tons of ore per day is being extracted and shipped to the mill on Whitewater, where thirty stamps are running steadily night and day. The pipe line for water power is being built as rapidly as possible, but it will probably be six weeks or two months ere it is completed. It will be a perfect and permanent piece of work when finished and will make the Confidence Mill the most economical, as well as the largest stamp mill in the territory.

Another strike of that very desirable class of copper bearing iron ore has been made on the Mimbres mine, owned by the Santa Rita Copper and Iron Company. A shipment made last week gave returns of 13 per cent. silica, 56 per cent. iron, 6.8 copper, 8 ounces of silver and \$1.20 gold per ton. This ore was taken out in sinking the new shaft which has attained a depth of 45 feet.

Charles Ashton and William Roach have located a mine, about two miles west of Silver's ranch, which they have named Red Onion. The Red Onion was first located about ten years ago by a couple of Swedes who extracted some very rich silver ore from the claim but a fault in the formation threw them off the ore vein. Messrs. Ashton and Roach believe they can find the vein and become millionaires.

OREGON.

Stockholders of the Le Roi mine last week purchased the Golconda and Westside mines, adjoining claims near Baker City. For the former \$25,000 was given and for the latter \$10,000, 10 per cent being paid down in each case.

C. D. Crane and Jos. Hollenbeck have become the owners of a fourth interest in the Tammany mine, lately purchased in the Willamette Valley by F. B. Thompson.

E. Spores, who was in Jacksonville not long since, reports that fifteen men are employed at the Boggs mines, in Elliott Creek district, getting the property ready for active operations.

From Dan Greer it is learned that he is now the lessee of the Steam Beer mine and is operating it on his own account. Mr. Nicodemus, the owner, is in Iowa.

C. X. Larrabee, operator in mines, and Mr. Haben, of Tacoma, were in Jacksonville last week on business connected with a big deal, which involves the sale of several thousand acres of placer ground in Jackson county.

SOUTH DAKOTA.

Near Custer peak, a group of mines is being worked by Messrs. Campbell, of Lead, and Abbott, Palmer, Corson and others, of Sioux Falls, S. D. A shaft has been sunk fifty feet, the theory of the owners being that they would encounter silicious ore at that depth. The shaft has been in sand shales the great part of the depth. It is the opinion of mining men who are familiar with the formations in that vicinity, that the shaft will not strike silicious ore at all but will instead find a vein of cement ore above the shales carrying free milling ore.

Golden Hill Mining Company is a new mining company with a capital stock of \$1,000,000. The officers are: Samuel Allerton, of Chicago, president; N. E. Franklin, of Deadwood, vice-president; Aaron Hatzenbach, of Deadwood, treasurer; J. W. Russell, Deadwood, secretary; Joseph Hatzenbach, Deadwood, director. The claim is situated about 1,000 feet south of the Hardin shaft. It was first located in 1877, and is one of the oldest in the Hills. A force of men is sinking a shaft, which is down 45 feet.

Gold Standard mine, which was sold recently to Eastern capitalists has already been developed quite extensively and several veins of free-milling ore have been opened which run from \$2 to \$8 to the ton. It is the intention of the company to erect a stamp mill early in the Spring.

UTAH.

It is reported that a foot of very fine gold quartz has been exposed in the face of the tunnel in the Gold Point mine, at the mouth of Big Cottonwood canyon.

Another consignment of cyanides was forwarded last week to the Consolidated Kansas City Smelting and Refining Company's Salt Lake sampler from the Highland Boy mine. Total December shipments of gold-copper ore were 750 tons. A 100-ton lot from No. 3 crosscut on No. 4 tunnel, gave 12% per cent.

copper, \$4 in gold, 3 oz. silver per ton. From this working a connection is being put down to No. 5 tunnel, 55 feet vertically below No. 4. Some 100 tons from No. 6 cross cut on No. 4 tunnel returned 7½ per cent. copper, \$5.23 gold, 3½ oz. silver. No. 6 tunnel, to cut the ore zone 105 ft. below No. 6, is in 415 feet.

Sunnyside Coal.

A short time ago a coal seam was discovered near Sunnyside which at first caused a little stir and then seemed to be forgotten. Development has steadily progressed, opening a strong vein of what is said to be superior gas and coke coal. Shipments are about to be made to the gas works at Salt Lake. G. J. Halladay and others of Salt Lake have located nearly 1,000 acres and a company will shortly be formed with ample means to operate the property.

Shipments of the Galena mine are curtailed on account of the heavy state of the roads. Mine continues to show finely. It is not true as the Salt Lake papers have recently said, that a joint hoisting plant with the Utah is being installed.

A new vein was found the other day in the lower tunnel of the Ophir mine from 1 to 3 feet wide, carrying \$35 to \$80 gold. It promises to be one of the most important uncoverings around Markham Gulch for many months. W. A. Robertson, J. B. Cammock and George Collins are the owners.

WASHINGTON.

Owners of property in Torodo creek are very sanguine that with the opening of spring Ballarat district will attract more attention than any other section of the Colville reservation. Eureka not excepted, and a number of them are proving their faith in the value of their claims by putting in the winter in active development work.

On the Bodie claim, in Bodie camp, an assay of \$132 was obtained near the surface.

The Comstock Mining and Milling Company was organized in Colville last week with a capital stock of \$500,000.

George W. Larner has completed assessment work on the Buckhorn on Onion creek. The shaft at a depth of 10 feet showed a solid body of chalcopyrite ore between the slate and granite with quartz gangue.

The Paris on the opposite side of the river Blossburg, is gradually improving. Another fine specimen of ore from this property was exhibited. The resident owners feel very much encouraged over this property. The tunnel is now in between 75 and 80 feet.

FOREIGN MINING NEWS

BRITISH COLUMBIA.

The Hall Mines smelter has made excellent runs, among the best by any single blast furnace in the world. Though of the nominal capacity of 300 tons per day, it has not been unusual for 350 tons of ore to be treated. The lead furnace will be blown in about Jan-

uary 15th, when about 100 tons a day more will be treated. At the smelter there are about 100 men employed and at the mines about 150. Soon the management expects to do away altogether with the shipment of matte to other smelters for treatment. R. R. Hedley, since he has been superintendent, has made some of the largest runs in the history of smelting.

high so that it can be put in any pocket, and is so well made and composed that it will stand considerable knocking about.

The manufacturer, Herman Kohlbusch, Sr., of Nassau Str., New York City, will send the balance to any address by registered mail on receipt of \$13.50 if you cannot obtain it from your supply house.

PERSONAL NEWS ITEMS

NOAH FIRDS DRAKE, a graduate student in geology at Stanford University, has accepted a position as professor of mining, engineering and geology at Tien Tsin University, China.

JAMES SIMPSON, one of the owners of the Miller ledge on Soldier's Creek, Oregon, who was in Eureka, Calif., has returned home and will push development work on his properties.

J. SCHUPPER, civil engineer, of Johannesburg, South Africa, has arrived in San Francisco from Japan. He left Johannesburg last May and has been spending some time in India and Japan.

JOHN HISE, formerly of Los Angeles, Cal., and now of Congress, Arizona, where he is operating some mines, was a caller at the JOURNAL office the other day. Mr. Hise is very enthusiastic over the properties he is working and expects to make something out of them in the near future.

J. A. CRIZZK has been in Boston purchasing machinery for the Idaho Consolidated Gold Company.

P. B. BIRK, the Medford, Oregon, mining expert, returned last week from a trip to Chicago and later made a trip to the Kerby district where he has some mining interests. Mr. Birge informs us that while east he saw and heard a great deal of the Klondyke craze, and that there is no doubt whatever of the existence of the immense crowds that will in a few weeks start towards the frozen north.

MR. DANIEL was in Ensenada, Lower California, last week from the Esperanza Company's mines in the Jacalitos district, where, he states, work is progressing very favorably.

MAJOR FLEMING, the Territorial mine inspector, came to Gallup, N. M., last week, from the east, and will remain for some days.

ALVIN F. SORTWELL, well and favorably known in Silver City as one of the owners of the Mand S. property at Mogollon, has been re-elected mayor of Cambridge, Mass. Mr. Sortwell seems to be as popular at home as he is in this section.

CLARENCE KING, the well known New York expert, is in Kingman, Ariz., making an examination of the C. O. D., presumably for the French stockholders. The lease having expired, the property is again lying idle.

E. F. BAKER, G. W. MALLONY, D. B. J. RADDICK, Geo. R. CURR and other citizens of Nordhoff, Ventura county, Cal., are directly interested in mines at Mojave and they are very hopeful of profitable results as soon as everything is ready and active work commences.

CHAR. D. LANG, the California millionaire mine owner, was in the city of Mexico last week, and is on his way to New York where he will complete the purchase of the Esperanza mine in Mexico.

MR. J. PARKER WHITNEY of Boston, who has extensive mining interests at Cripple Creek and Leadville, and is also one of the owners of the Santa Rita property, in southwestern New Mexico, will spend the winter in California.

H. GRAFTON VERCOE, superintendent of the Copper King mine at Lether, Fresno county, California, expects to leave in a few days for the Gavilan mines at Perris, Riverside county, Calif., where his father, H. B. Vercoe, is the manager.

MR. FRANK NICHOLSON, manager of the Consolidated Gold Fields of Mexico, Ltd., in Mexico, and consulting engineer of the company, sailed December 29th from New York for London, but expects to return to Mexico via New York very shortly. Mr. Nicholson gives excellent reports of the mines which are looking well and are making satisfactory returns.



The above cut represents the most complete, compact and economical pocket assay balance on the market. Same is all complete with set of weights from 10 grammes down to 1 millegramme and a tweezers. This balance shows four divisions for one millegramme.

The advantage of the balance is, that it can be used first for pulp and then for the bullion. It takes but ten seconds to put the balance in working order. When closed same measures 6 inches long, 2½ inches wide and 1½ inches

THE MARKETS.

NEW YORK, Jan. 12th, 1898

The following are the Silver, Copper and Lead quotations for the last two weeks:

	SILVER	COPPER	LEAD
Dec. 27	67	10 95	8 50
28	65	10 10	8 50
29	66 1/2	10 10	8 50
30	67	10 97 1/2	8 50
31	67 1/2	10 97 1/2	8 50
Jan. 1	68	11 00	8 40
2	67 1/2	11 00	8 50
3	66	11 00	8 50
4	66	11 00	8 50
5	66	11 00	8 50
6	66	11 00	8 50
7	66 1/2	10 97	8 50
8	67	10 97	8 50
9	66 1/2	10 95	8 50
10	66 1/2	10 95	8 50
11	66 1/2	10 95	8 50
12	66 1/2	10 95	8 50

The Silver market has been rather slow, the prices remaining between 66 1/2 and 67 1/2. It one day is low and the next high. The market showed a little more strength at the close of the week, and the prospects for the future seems a little more encouraging.

COPPER.

The New York market has been firm, but not much business has been done as no home consumer are still provided with raw material. Quotations are Lake Copper 10% @ 11c.; for Electrolytic, 10% @ 10 1/2c.; Casting copper retail lots 10% @ 10 1/2c.

LEAD

It has been rather slow in movement as consumers are well supplied. We quote it @ \$3.50

SPELTER

There has been a large increase in the production and buyers in consequence are holding off.

New York quotations are 3% @ \$3.90 and St. Louis \$3.72 1/2 @ \$3.75.

ANTIMONY.

It has been rather dull and we quote for Cookson's 8c., Hallett's 7 1/2c., U. S. Star 7 1/2c., and Japanese 7% @ 7 1/2c.

NICKEL.

Business still continues on unchanged lines and no alteration in prices can be reported. We quote for New York ton lots 38 1/2c. and 36c per lb and for smaller orders 35 1/2c. and 38c.

TIN

The demand for tin is quite good. We quote for spot and January \$13.75 and for future \$13.85.

PLATINUM.

Prices are now quoted at \$15 and \$16 per oz., New York. The London quotations are 58 @ 60 £ per oz. Supplies are not large and prices are firm. For chemical ware, best hammered metal, Messrs. Eimer & Amend of New York furnish the following quotations, the prices given below being respectively for orders of over 260 grams; for orders of over 100 and less than 250 grams and for orders of less than 100 grams. Crucibles and dishes, 57c., 58c. and 59c. per gram. Wire and foil are 55c., 56c. and 57c. per gram.

QUICKSILVER.

The New York quotation arent \$38.50 per flask. San Francisco quotations are \$39 for domestic consumption.

POWDER.

The market at San Francisco is fine with the current quotations. The quotations are as follows:

For Hercules No. 1, from 11 1/4c. to 17 1/4c., according to strength and quantity. No. 2, from 9c. to 11c., according to strength and quantity.

COKE.

The total receipts in 1897 aggregated 30,320 tons, 5812 tons less than in 1896, 2573 tons of which came from British Columbia and 1889 tons from Australia. These are two new sources of supply for this market.

BORAX.

The San Francisco market in Borax is firm with a good demand. The market is quoted as follows:

Refined, in carload lots, in barrels..... 6
Refined, in carload lots in sacks..... 5 1/2
Powdered, in car lots..... 5 1/2
Concentrated, in car lots..... 5 1/2

THE MINOR METALS.

Quotations are given below for New York delivery:

Aluminum:
No. 1, 69 per cent. ingots, per lb..... 34 1/4c
No. 2, 64..... 31 1/4c
Rolled sheets, "..... 38c up
Alum-Nickel, "..... 31 1/2c
Bismuth, per lb..... 1.00 @ \$1.50
Phosphorus, per lb..... 45 1/2c
Tungsten, per lb..... 70c
Tungstic acid..... 45c
Tero-tungsten, 60 per cent..... 45c

Variations in price depend chiefly on the size of the order.

CHEMICALS

There is absolutely nothing new to report, but it is expected that before the current month goes by there will be higher prices and a more active demand from buyers.

Quotations generally are as follows:

BRIMSTONE.

Quotations at present are \$20.75 @ \$21.50 per ton for best unmixed seconds, and \$20 @ 20.50 for thirds. On January 4th the Pennsylvania Salt Manufacturing Company received from Huelva, Spain, per Str. "Britannic," 3091 metric tons of sulphur ore.

MURIATE OF POTASH.

We quote New York and Boston,

1.75 @ \$1.78c. Philadelphia and Norfolk,

1.76 @ 1.79c.; Charleston, Savannah,

Wilmington and New Orleans, for 80@ 85 per cent. basis of 80 per cent., \$1.78 1/2 @ \$1.81c in lots of 50 tons and upward.

KAINIT.

Invoice weights as taken at port of shipment per ton of 2,240 lbs. testing 12.4 per cent. actual potash, equivalent to 23 per cent. sulphate of potash, \$8.80 @ \$8.90.

BRIMSTONE.

Quotations at present are \$20.75 @ \$21.50 per ton for best unmixed seconds, and \$20 @ 20.50 for thirds. On January 4th the Pennsylvania Salt Manufacturing Company received from Huelva, Spain, per Str. "Britannic," 3091 metric tons of sulphur ore.

This statement includes the exports and imports at all United States ports, the figures being furnished by the Bureau of Statistics of the Treasury Department.

Gold and Silver Exports and Imports, New York.

For the week ending January 7th, 1898, and for years from January 1st, 1897, 1896, 1895:

Period	Gold	Silver
Week	Exports	Imports
1898	25,000	80,190
1897	25,000	80,190
1896	42,140	12,116
1895	42,140	12,116
1894	30,708	15,889
1893	6,073,876	38,994

The gold exported for the week went to the West Indies; the Silver London and South America. Of the gold imported \$494,086 came from England, \$289,500 from France, \$69 from Germany and

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MINING STOCK MARKETS.

LOS ANGELES, CAL., Jan. 15, 1898

During the earlier part of the week the market was remarkably dull, probably owing to the absence of several prominent brokers, who took a trip out to the mines. The prices remained almost unchanged, except on Wedge stock, which sold again above 3 cts. last week. The last three days of the week were more lively and large blocks of stock changed hands. The general outlook is considerably brighter and it will be only a matter of a short time, when prices will be higher again and the market stronger. Eastern people, who are coming in large numbers are getting interested in our Southern California mines and are buying stocks, and this has tendency to create a strong market on all mining stocks.

The Pacific Consolidated is selling now at \$2.50 to \$3.00 per 1000. Only small lots of the stock is sold as the large holders of stock are very much encouraged on account of late reports which show that the mine is showing up good. Maggancett and Mohawk Action were pretty good in selling the earlier part of the week and are on the improve.

Southern California is right in the mining center and will always be on the improve.

SAN FRANCISCO, CAL., Jan. 12, 1898.

The market held firm first part of week but showed signs of weakness in the latter part. This decline is a surprise to some but it will always occur, when the general condition of the country with speculations reviving everywhere and interests centered on this coast.

The reports from the different mines are very encouraging and will help to put up the spirit of many shareholders. News from the Comstock mines state nothing of an important nature, except that preliminary or dead work has been finished in some mines and others nearing an end. In the Utaw work is still in an northwestern direction. The Union mine is now running east on the 900-foot level and they are running east also on the 1000 foot level of the Mexican. Work is still being done on the Ophir on both the Old Central tunnel level and the 1000-foot level, only it is in an westerly direction.

No work of any importance has been done in the Hale & Norcross.

Nothing new has been done in the Seg. Belcher and Overman. In the 600-foot level the west cross-drift run jointly by Best and Belcher and Con. Virginia is in about 60 feet. Good work is being in the 580 foot, 660 foot and 750 foot level of the Occidental. There is very active work going in the Comstock mines, it is quite safe to affirm that such shrewd and successful men as D. O. Mills, John W. Mackay and Col. Alvina Hayward, and others, would dispose of their milling and other interests on the lode if they did not believe that history will repeat itself again. The formation is favorable. No change in the work on the Central tunnel level. From Con. Virginia there is nothing new; the work is confined to exploiting on the 1650-foot, 1650-foot and 1750-foot levels. Best & Belcher and Gould & Curry are repairing the Bonner shaft. No change is reported by Savage. No change in the work on the Chollar-Potosi joint work. Active exploiting work is being done in Potosi with varying success. They are drifting south on the tunnel level.

SALT LAKE, Utah, Jan. 10, 1898.
Stocks were quite active on the floor of the mining exchange, and the dealings were distributed over quite a range of leading securities.

Ajax, during the chronicled continued advances, closed strong at 87 cents bid, while there was a noticeable demand for Bullion-Beck and Continental-Eureka. Four Aces recorded another fractional gain and was somewhat stronger in the asking. Considerable attention was paid to Geyser-Marion, which was active and a ready seller. Mammoth fell off somewhat in the bidding, while the same could be said of Mercur, and yet both of these securities were firm in the holdings. Northern Light was one of the features of the call, and made an excellent record, as well as gains over previous figures, holders being rather averse to selling at the prices quoted. Overland advanced to 85 cents in the bidding, with no sellers in the pit. Ontario made its presence felt by the transfer of 100 shares at \$4.05.

In the unlisted stocks considerable skirmishing was indulged in when Chloride Point was called, the result being that 200 shares were transferred at 46 cents. Swansea noted a sale at a decline below the figures of three weeks ago, while South Swansea was in excellent form, and registered a sale at \$1.37½.

Horn silver recording the usual bid of \$1.25, with a quotation of \$1.75 in the asking. Mammoth was in fairly good demand and registered transfers at \$1.22½. Mercur was somewhat slow, on account of the dividend being "on," but a strong upward movement was noticeable when Northern Light was called. The balance of the unboarded securities were hardly noticed and some failed to establish a bidding quotation.

VANCOUVER, Jan. 13, 1898

The clean-up at the Golden Cache mines for the month's run, during which time there were 750 tons crushed, resulted in 900 oz. of amalgam being taken from the plates, which when retorted amounted to about \$3300 00 or \$4.40 per ton.

This result has been extremely disappointing to a great many of the share-holders, as they expected that the result would not go less than \$10.00 to the ton. In consequence of this the stock has dropped from \$1.80 to 30 cts. per share.

At the Tin Horse mine in the Fairview Camp they were only able to run their mill for five days, as the frost got into the pipes. However for the five days they got over \$1000.00 from the plates.

The Stock Market is very quiet with little or no business doing, but as soon as the holidays are over things will no doubt begin to move.

The Rossland Camp is attracting a great deal of attention at present and will have quite a boom again in the Spring.

The Twin Silver Mining Co., whose property is in the Ainsworth, (B. C.) district, have placed considerable treasury stock in Quebec and Montreal, at 15 cents. Promoters' stock is pooled until the mine shall be on a paying basis. The company are at present driving a 200 foot tunnel.

property. Bidders raised the price of Small Hopes from 65c. a week ago to 75c. Leadville Consolidated, which has not been dealt in since early in November, sold 550 shares at 8c.—a drop of 17c.

Lacrosse appeared this week after an absence of about three months, sales being made at 11c. Little Chief changed hands at 14c. Of the other Colorado stocks Isabella sold at 33c. to 34c. This company reports a net profit in November of \$11,472. It has been announced that Mr. J. J. Hagerman's right to vote all stock of this company known as "Stamped Isabella" ceased on December 15th, and all such stamped stock can now be exchanged for the regular stock.

Elkton was decidedly quiet in the local market, notwithstanding the fact that the company realized a net profit of \$3,873 in November, and that the closing month of the year will show a similar gain. Golden Fleece advanced from 53c. on week before last to 63½c. on December 21st. The company reports a net profit of \$4,526 in November, against \$7,489 in the previous month. Lillie was called on the Mining Exchange this week, and there were buyers of 300 shares at 72c. The company paid its second dividend of 1c. per share on December 1st, making a total of \$17,000 paid so far.

JOHN STEWART

MINING ENGINEER

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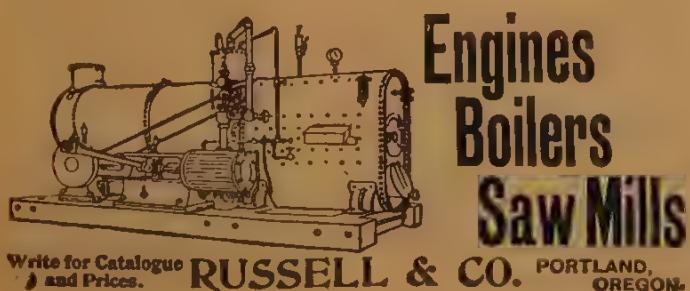
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INCORPORATED MINES PAYING DIVIDENDS.

NAME OF MINE	LOCATION	No. of Shares	Capital Stock	Par Value	Amount of last Dividend	Date of Last Dividend	Total Amount Paid in Dividends		Kind of Minerals Produced
							Per Share	Amount of last Dividend	
Aetna Cons.	California	100,000	\$ 500,000	\$ 5	\$ 10	Sept 1897		\$ 110,000	Q.
Adams	Colorado	150,000	1,500,000	10	04	October 1895		893,500	B, L, C.
Alaska, Treadwell	Alaska	200,000	5,000,000	25	35 $\frac{1}{2}$	October, 1897		8,250,000	Q.
Alaska Mexican	Alaska	200,000	1,000,000	5	10	Oct., 1897		297,031	G.
Alice	Montana	400,000	10,000,000	25	08	Oct 1897		1,055,000	G, S.
Anaconda	Montana	1,200,000	30,000,000	25	12 $\frac{1}{2}$	May 1897		3,750,000	G.
Anchorage Leland	Colorado	800,000	600,000	1	01	Oct 1897		81,000	G.
American Gold	Michigan	40,000	1,000,000	25	100	Feb. 1897		273,000	G, S, L.
Atlantic	Montana	250,000	250,000	1	03	Sept 1897		740,000	C.
Bald Butte	Colorado	600,000	600,000	1	01	July 1896		107,510	S, L, C.
Bangkok O-Bell	Colorado	500,000	500,000	1	00 $\frac{1}{2}$	April 1897		5,000	G, S.
Big Six	Montana	150,000	3,750,000	25	300	Aug 1897		6,275,000	G, C, S.
Boston & Montana	Utah	100,000	1,000,000	10	50	Mar 1897		2,465,000	G, S.
Bullion Beck and Champion	Idaho	300,000	8,000,000	10	05	Oct 1897		324,000	S, L.
Bunker Hill and S	British Col.	800,000	800,000	1	02	May 1897		158,985	G.
Cariboo	Colorado	500,000	500,000	1	01	March 1896		25,000	G.
C. O. D.	Michigan	10,000	2,500,000	25	100	Oct 1897		50,850,000	C.
Calumet & Hecla	Utah	80,000	1,500,000	50	100	Mar 1897		2,010,000	S, L.
Centennial Europa	Missouri	4,000	400,000	100	100	Oct 1897		16,000	L.
Central Lead	South Car.	10,000	1,000,000	100	100	Feb 1897		160,000	
Charleston	California	34,000	340,000	10	25	Aug 1897		3,592,800	G, S.
Champion	Nevada	216,000	21,600,000	100	25	March 1895		1,910,000	C.
Consolidated, California and Virginia	Arizona	200,000	2,000,000	10	25	June 1895		280,000	
Copper Queen Consolidated	Utah	24,000	600,000	25	25	July 1897		2,925,000	Q, L.
Crescent	Utah	150,000	8,000,000	20	25	Mar 1897		1,320,000	G.
Daly	Dakota	200,000	5,000,000	25	40	June 1897		2,250,100	S, L.
Deadwood Terra	Idaho	400,000	2,000,000	5	25	Jan 1897		80,000	G.
De Lamar	Colorado	1,000,000	1,000,000	1	10	Jan 1897			
Della S.	Missouri	5,000	600,000	100	50	October 1897			L.
Doe Run	Utah	2,500,000	2,500,000	1	00 $\frac{1}{2}$	August 1896		87,500	S, L.
Dalton and Lark	Colorado	1,250,000	1,250,000	1	03	Sept 1897		381,980	G, S.
Elkton Consolidated	Colorado	850,000	850,000	1	01	Aug 1897		5,393	G, S.
El Paso	Montana	500,000	2,500,000	5	01	May 1897		182,520	S.
Florence	Utah	100,000	1,000,000	10	05	Jan 1897		71,000	G, S, L.
Galena	Colorado	1,200,000	1,200,000	1	01	Feb. 1897		24,000	G.
Garfield Grouse	Utah	300,000	1,500,000	5	03	Nov 1897		54,000	G.
Geyser-Marion	Colorado	1,000,000	1,000,000	1	01	Sep. 1896		10,000	G.
Golden Eagle	Colorado	600,000	600,000	1	01	Feb. 1897		569,179	G, S.
Golden Fleece	Colorado	200,000	1,000,000	5	05	Aug 1897		150,000	G, S.
Gold Coin	Colorado	750,000	750,000	1	8-10	July 1897		61,25	G.
Gold and Globe	Montana	30,000	1,500,000	50	04	Feb 1897		2,175,000	B, G, I, C.
Hecla Consolidated	Idaho	500,000	2,500,000	5	04	August 1896		475,000	S, L.
Helena & Frisco	S. Dakota	100,000	10,000,000	100	20	Oct 1897		3,424,918	G.
Hightland	S. Dakota	300,000	300,000	1	03	Sept 1897		18,000	G.
Holy Terror	Dakota	125,000	12,500,000	100	25	Oct. 1897		6,131,250	S.
Homestake	Montana	100,000	1,000,000	10	10	Nov 1897		732,252	S.
Hope	Montana	400,000	10,000,000	25	12 $\frac{1}{2}$	January 1898		5,080,000	S, L.
Horn Silver	Utah	400,000	10,000,000	25	12 $\frac{1}{2}$	January 1898		162,000	
Idaho	Brit. Col.	500,000	500,000	1	05	Mar 1897		65,000	G.
Iowa	Colorado	1,000,000	1,000,000	1	00 $\frac{1}{2}$	Oct 1897		497,500	S.
Iron Mountain	Montana	500,000	5,000,000	10	01	Sept 1897		270,000	G.
Isabella	Colorado	2,250,000	225,000	100	00 $\frac{1}{2}$	June 1897		160,000	C.
Kearnsarge	Michigan	40,000	1,000,000	25	10	Aug 1897		42,000	S, L.
Last Chance	Brit. Col.	500,000	500,000	1	04	Jan 1897		625,000	G.
Le Roi	British Col.	500,000	2,500,000	5	10	Oct 1897		824,000	I.
Minnesota	Minnesota	165,000	16,500,000	100	160	July 1896		840,000	
Montana Ore Purchasing	Montana	40,000	1,000,000	25	01	October 1897		186,000	G.
Moose	Colorado	600,000	600,000	1	01	January 1898		558,800	G.
Morning Star	California	2,400	240,000	100	800	Sept. 1897		30,000	G.
Mt. Rosa	Colorado	1,000,000	1,000,000	1	00 $\frac{1}{2}$	Oct 1897		825,000	G.
Mercur	Utah	200,000	5,000,000	25	12 $\frac{1}{2}$	Oct 1897		1,150,000	G, S, O
Mammoth	Utah	400,000	10,000,000	25	05	Nov. 1896		68,000	G.
Moon Anchor Gold	Colorado	600,000	600,000	1	02 $\frac{1}{2}$	Nov 1897		72,000	G.
New Elkhorn	Colorado	300,000	1,500,000	5	24	Sep. 1896		832,500	S, G.
New York & Hon. Rosario	Central A.	160,000	1,500,000	10	10	Oct. 1897		870,000	Q.
Napa	California	100,000	700,000	7	20	Oct 1897		20,000	Q.
New Idria Quicksilver	California	100,000	500,000	5	10	Sept 1897		13,445,000	S, L.
Ontario	Utah	150,000	15,000,000	100	10	June 1897		2,172,500	C.
Oceola	Michigan	50,000	1,250,000	25	100	June 1897		1,656,122	C.
Parrot	Montana	230,000	2,800,000	10	06	June 1897		20,750	
Pennsylvania Consolidated	California	51,500	5,150,000	10	05	Sept 1897		3,275,000	S.
Portland	Colorado	3,000,000	3,000,000	1	01	Oct 1897		1,163,000	G, S.
Princess	Colorado	1,000,000	1,000,000	1	00 $\frac{1}{2}$	Feb 1897		45,000	G.
Quincy	Idaho	100,000	2,500,000	25	40	August 1897		9,470,000	C.
Rambler-Cariboo	Brit. Col.	1,000,000	1,000,000	1	02	April 1897		40,000	
Reco	Brit. Col.	1,000,000	1,000,000	1	50	May 1897		187,500	S, L.
Sacramento	Utah	1,000,000	5,000,000	5	00 $\frac{1}{2}$	March 1897		22,000	G.
Small Hope Consolidated	Colorado	260,000	5,000,000	20	10	Mar 1898		3,275,000	S.
South Swansea	Utah	150,000	150,000	1	05	Oct 1897		59,960	S, L.
Standard	California	200,000	20,000,000	100	10	Sept 1897		3,757,888	G, S.
St. Joseph	Missouri	250,000	2,500,000	10	15	Oct 1897		34,000	L.
Silver King	Utah	160,000	8,000,000	20	25	October 1897		1,237,500	S, L, G.
Slocan Star	Brit. Col.	2,000,000	1,000,000	0.50	05	Mar 1897		360,000	
Smuggler Union	Colorado	50,000	5,000,000	100	1,00	Oct 1896		150,000	G, S.
Swanson	Utah	100,000	600,000	5	05	Oct 1897		61,500	S, L.
Tom Boy	Colorado	200,000	2,000,000	10	20	March 1898		410,000	G.
Tamarack	Michigan	60,000	1,500,000	15	300	June 1897		4,950,000	C.
Union	Colorado	1,250,000	1,250,000	1	01	June 1896		73,000	S.
United Verde	Arizona	300,000	3,000,000	10	25	December 1898		582,500	C.
Utah	Utah	100,000	1,000,000	20	02	Feb. 1897		175,000	G, S.
Utah Consolidated	Utah	30,000	160,000	5	02	Sept 1896		3,000	R, L.
Victor	Colorado	200,000	1,000,000	5	10	March 1897		765,000	G.
Western Mine Enterprise	Montana	500,000	500,000	1	10	Mar 1897		12,000	
War Eagle	British Col.	500,000	500,000	1	06	October 1898		187,000	

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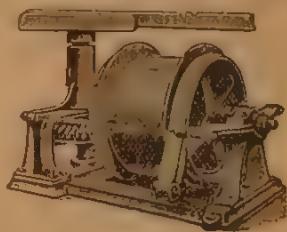
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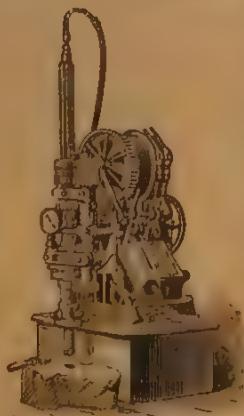
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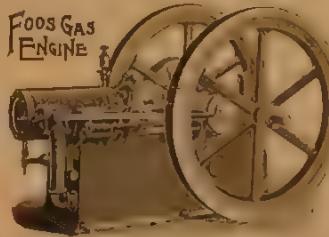
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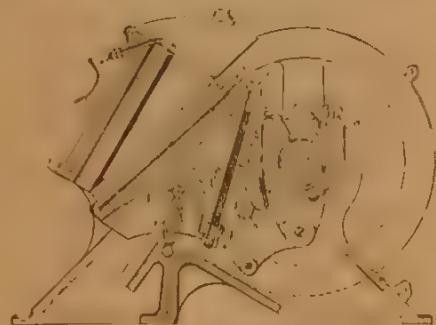
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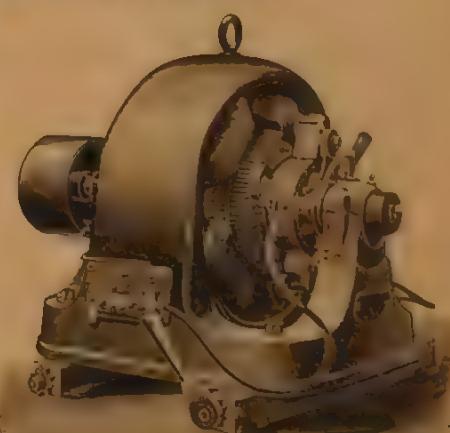
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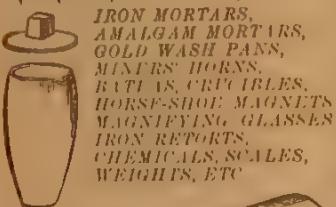
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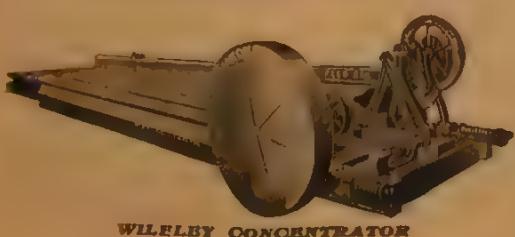
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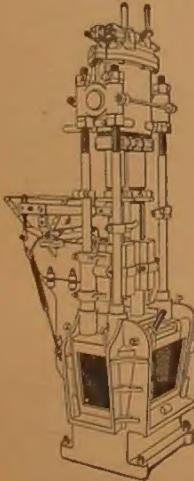
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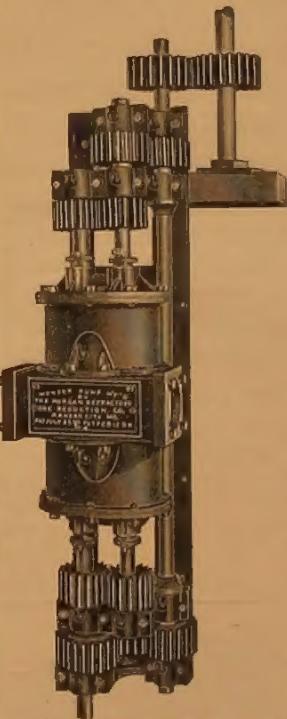
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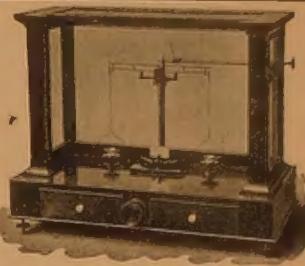


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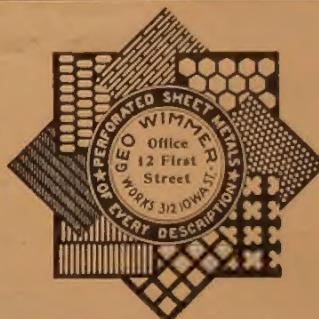
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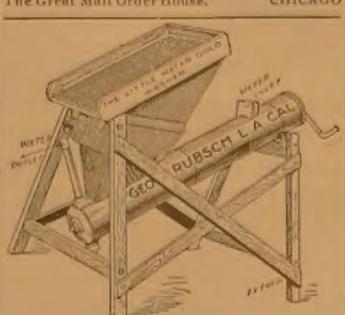
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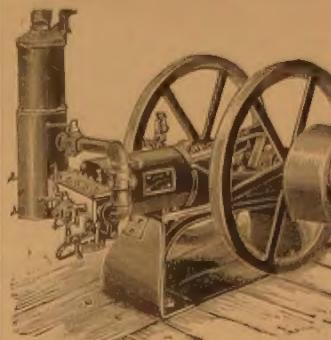
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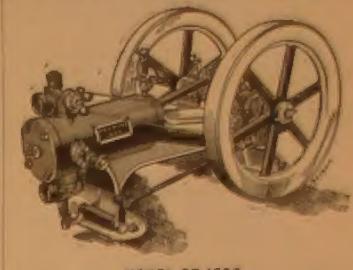
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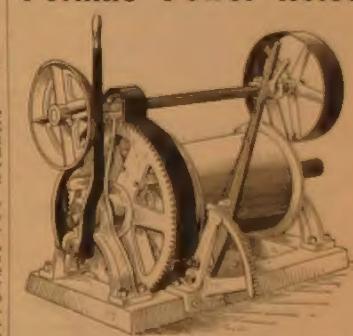
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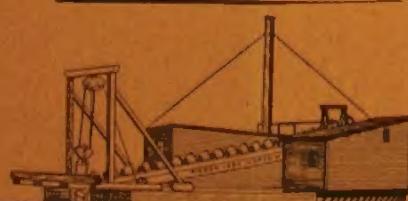
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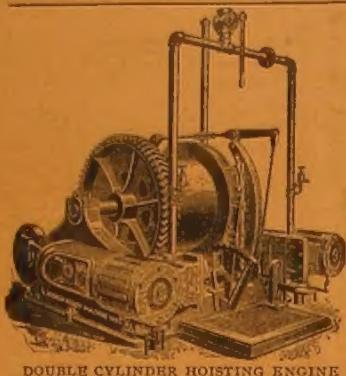
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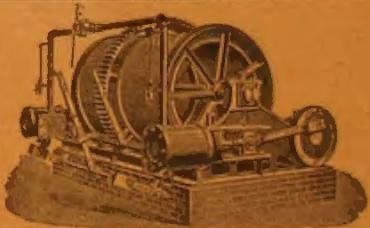
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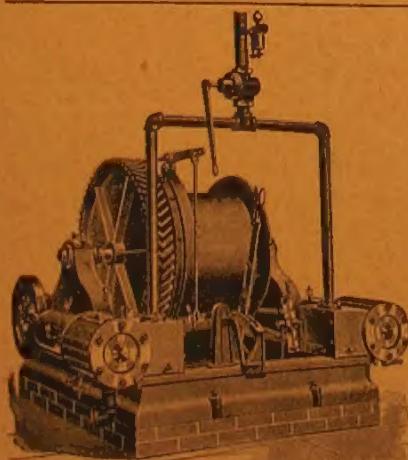
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